COTTON

JULY, SERVING THE 1939

Textile Industries

NOW is the TIME

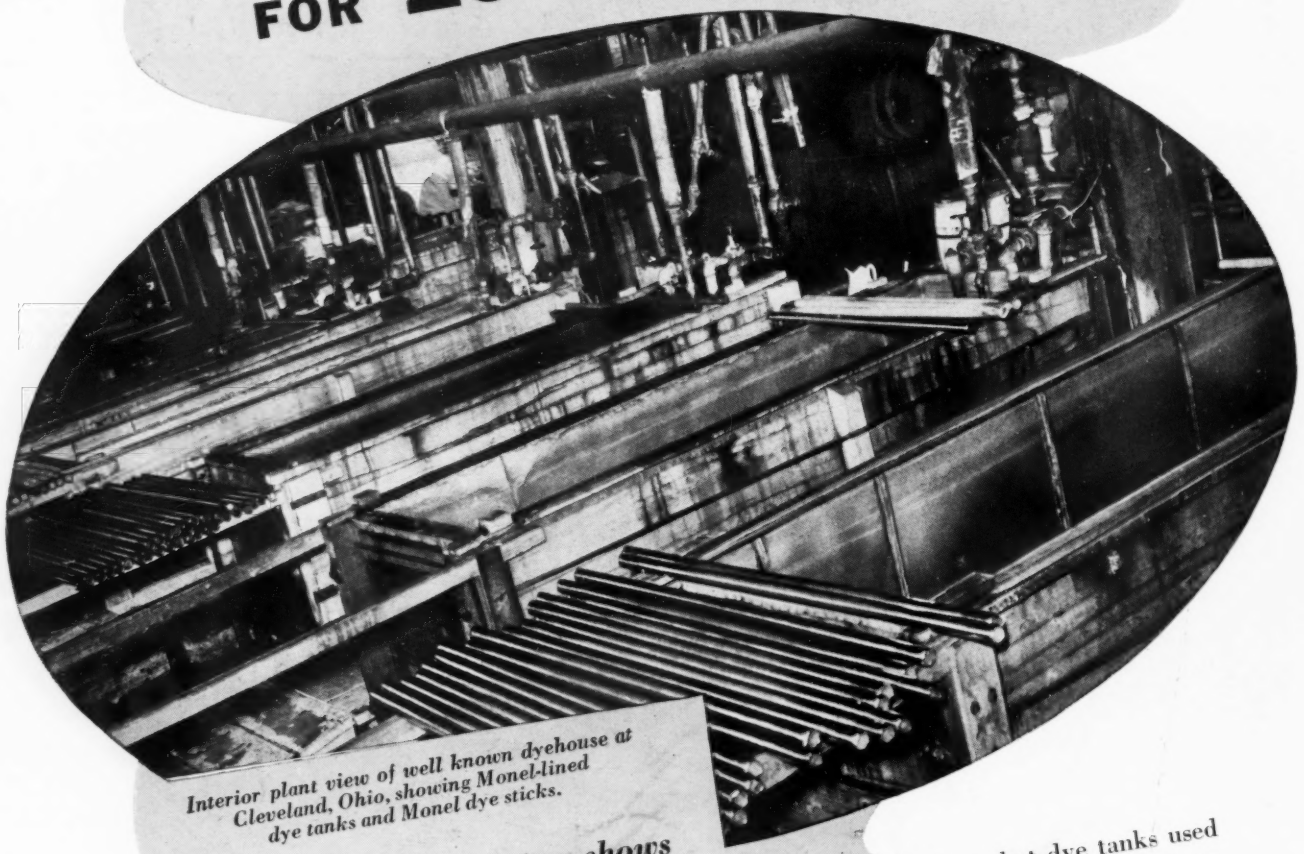
During this time of depressed conditions which makes it so hard for many textile mills to show operating profits, there could be NO BETTER TIME to take advantage of the opportunities offered to reduce warp sizing costs and with such superior results.

DRAKE CORPORATION

NORFOLK — VIRGINIA

TS1550
C8

WITHSTANDS DESTRUCTIVE SALT SOLUTIONS FOR 29 YEARS . . .



Interior plant view of well known dyehouse at Cleveland, Ohio, showing Monel-lined dye tanks and Monel dye sticks.

. . . Yet this Monel lining shows no sign of corrosion and is still giving excellent service

How Monel resists corrosion, dyestuffs and chemicals also by salt and brine is well illustrated by the first of the Monel dye tank linings shown above. Consider its record:

Originally installed in 1910, it outlasted one wood tank. A few years ago, it was transferred to a second. Today, this 29 year old Monel lining is still in service . . . and in excellent condition.

What, you may ask, is remarkable about that? Just this:

Other metals might have resisted corrosion by the dyestuffs and chemicals used in this lining. But how many could so successfully withstand attack by the salt solutions also used?

Small wonder then, that dye tanks used by the Friedman Blau Farber Co. of Cleveland, Ohio, are all lined with Monel. Or that the several batches of dye sticks shown in the picture, are also made of Monel . . . 1¾" dia., .049" wall, welded Monel tubing in 57" lengths.

In resistance to corrosion by salt, Monel is the outstanding metal. That is why hundreds of dyehouses are saving thousands of dollars by using this long-lived, economical alloy. Write for further information on Monel. Address:

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street **New York, N. Y.**

MONEL

"Monel" is a registered trade-mark of The International Nickel Company, Inc., which is applied to a nickel alloy containing approximately two-thirds nickel and one-third copper.

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Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of March 3, 1879.

A New Bobbin
That Holds Fast and True

To Supplement the Patent Rubber Pad for Shuttle Springs—whose Reception by the Industry has been Sensational—we have a New Patent Bobbin with its Middle Ring so Changed that there is Great Increase in the Firmness with which it is Held by the Shuttle Spring

The Change in the Rings is Small—but Very Important
It Increases the Improvement Brought about by the Rubber Pad for Shuttle Springs

The Rubber Pad

Preserves the Life and Tension of the Spring so that the Point of the Bobbin Does Not Drop and Get Out-of-line in the Shuttle

The Patent Rings on the New Bobbin

Increase the Gripping Power of the Spring and the Firmness with which it Holds the Bobbin

Together They Give You

Reduced Shuttle Spring Breakage
Less Wear on Notches in the Spring

A Smaller Cost for
Shuttles and Shuttle Parts

Bobbins Held Pointing True
Better Weaving-off of the Filling

Better Cloth
And Less Seconds

They Are Patented

And You Can Get the Rubber Pad for Shuttle Springs
and the Modified Rings of the New Bobbin

Only in Draper Shuttles and Bobbins

DRAPER CORPORATION

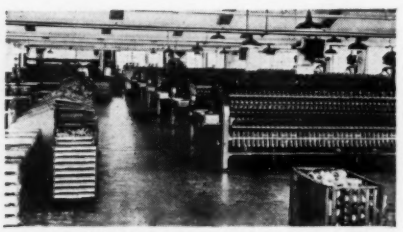
Atlanta Georgia Hopedale Massachusetts Spartanburg S C

WORLD'S LARGEST SWIM SUIT MANUFACTURER SAYS...

TEXACO IS TOPS!

Above: **ADMINISTRATION BUILDING** of Jantzen Knitting Mills, Portland, Oregon.

Above: **JANTZEN SPINNING MILL** where Texaco Lubricants are in use 100%.



Above: **SPINNING FRAMES** in Jantzen Knitting Mills. They are Texaco lubricated.

HARRY HOYLE, Jantzen Spinning Department Superintendent, at his desk. Mr. Hoyle is a graduate of Halifax Technical College, Halifax, England.

THE JANTZEN KNITTING MILLS, Portland, Oregon, showplace textile mill of the Pacific Northwest, is constantly faced with the necessity of producing yarns that are absolutely free from oil stains. Superintendent Hoyle reports that Texaco Lubricants keep swim suit yarns clean, save h.p. by reducing friction. Cap spindles running 7,000 r.p.m. 24 hours a day stay cool.

His report reads—"We have not found Texaco's equal, let alone anything better," and "we feel that we have the right products in the right place."

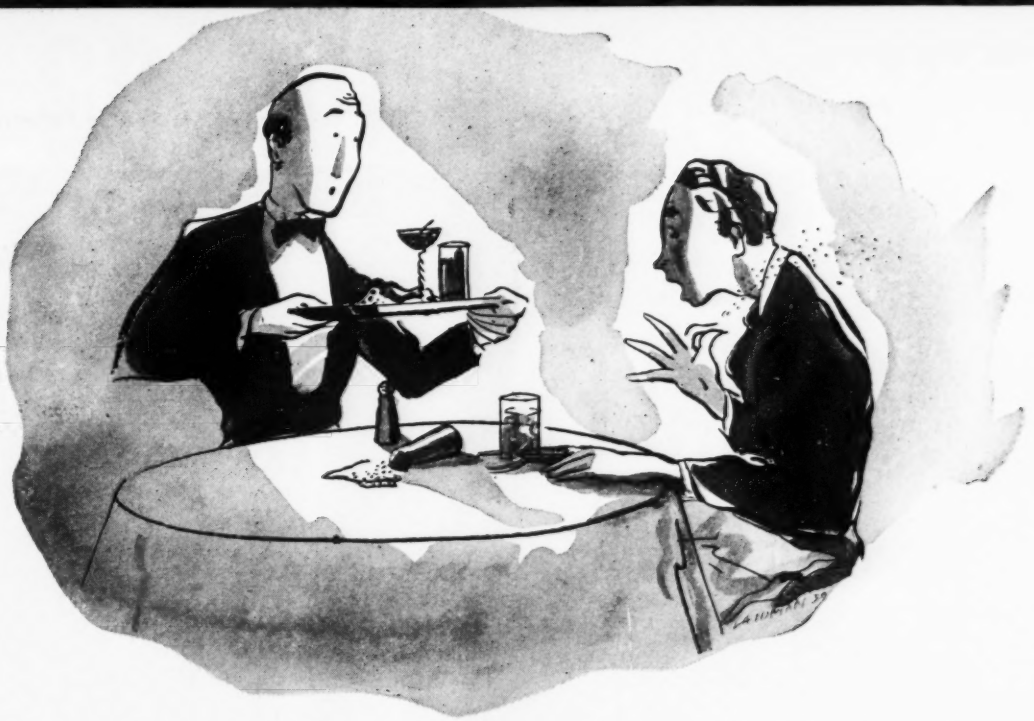
Trained lubrication engineers will be glad to assist you in uncovering the savings possible with Texaco Textile Mill Lubricants. To get this engineering service and for prompt delivery, phone the nearest of our 2229 warehouses or write:

The Texas Company, 135 East 42nd Street, New York City, N. Y.

TEXACO

TEXACO

TEXTILE MILL LUBRICANTS



Funny, the Superstitions Always Associated with Salt

Throwing salt over your shoulder *may* ward off bad luck. But being superstitious about the salt hazard in properly made electrolytic caustic soda today is like throwing profits away.

Many large mills have proved that Warner Caustic Soda gives complete satisfaction in every respect. Is it possible that these mills, making production economies with Warner Caustic Soda, are putting you at a competitive price disadvantage?

Warner Caustic Soda has two advantages: The unequalled experience of the pioneer producer — plus an unexcelled source of raw materials... heavy-laden brines from ever-flowing wells driven deep in the sands of the Kanahwa Valley of West Virginia, generous in giving up their chemical content under treatment. Result: A regular production grade Caustic Soda with the salt content reduced to a percentage which has no discernible deleterious effect in mercerizing.

A frank discussion may clear up any misgivings you have about electrolytic caustic soda. If definite savings — made without fear of upsetting your present processes — is interesting to you, set the date and a Warner representative will call. Your inquiry will receive immediate attention.

OTHER WARNER CHEMICALS

Tetra Sodium Pyrophosphate
Phosphoric Acid
Sodium Phosphates
(mono, di-and tri basic)

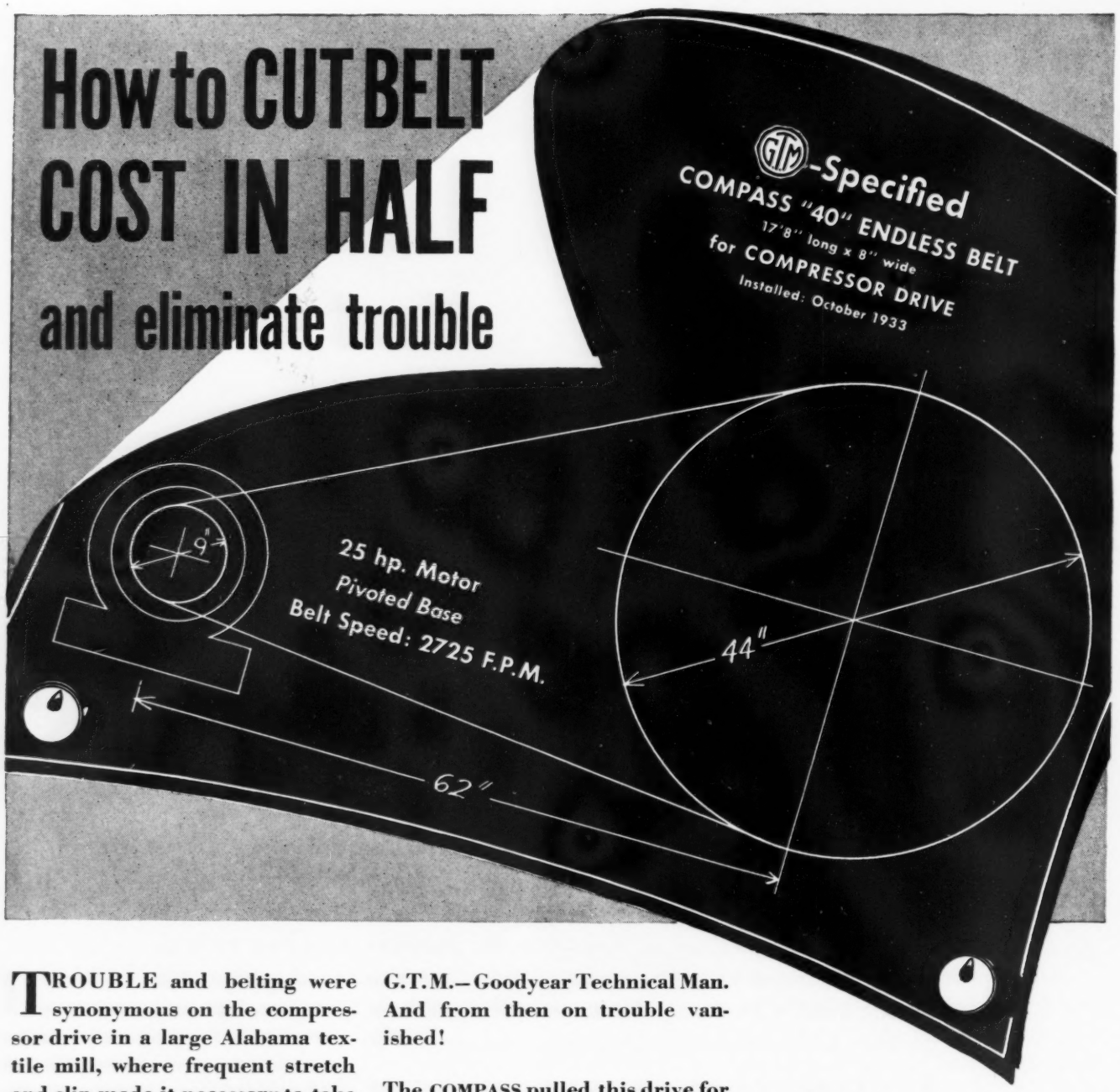
Liquid Caustic Potash
Chlorine, Liquid
Carbon Tetrachloride
Trichlorethylene

Carbon Bisulfide
Sodium Sulfide
Epsom Salt
Hydrogen Peroxide

CHEMICAL **WARNER** COMPANY

DIVISION OF
WESTVACO CHLORINE PRODUCTS CORPORATION

CHRYSLER BUILDING, NEW YORK, N. Y.



TROUBLE and belting were synonymous on the compressor drive in a large Alabama textile mill, where frequent stretch and slip made it necessary to take down the drive every 45 to 60 days to cut out slack. With this constant maintenance belts averaged about four years' service.

Then, in October 1933 a COMPASS* "40" truly endless belt, 17' 8" long by 8" wide, was installed on this drive after a consultation between the mill superintendent and the G.T.M.—Goodyear Technical Man. And from then on trouble vanished!

The COMPASS pulled this drive for nearly six years—being removed only a few months ago—and in all this time it never required a single repair or one cent of maintenance expense. And that's only part of the savings because the COMPASS cost *only half as much as the belts previously used!*

This is typical of the service Goodyear belting is giving throughout the textile industry—typical of the savings insured by Goodyear quality and G.T.M. specification. That's why it will pay you to consult this competent adviser. Just write Goodyear, Akron, Ohio, or Los Angeles, California—or phone the nearest Goodyear Mechanical Rubber Goods Distributor.

*Trade-mark of The Goodyear Tire & Rubber Company

Centennial of Charles Goodyear's discovery of vulcanization

THE GREATEST NAME IN RUBBER

GOODYEAR

THEY GO 'ROUND AND 'ROUND TOGETHER!

There's No Sag, No Slip, No Uneven Wearing When You Use MATCHED SETS of Allis-Chalmers Texrope V-Belts! Read How They Can Help You Cut Your Power Transmission and Maintenance Costs!

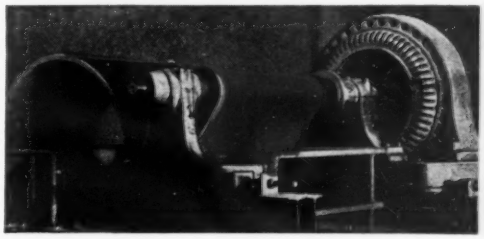
NEW MEASURING MACHINE SHOWS EXACT length of belt to 1/100th of an inch . . . permits matching of belts into sets that carry the load TOGETHER!

There's a special reason why Allis-Chalmers Texrope V-Belts do their share of work equally, carrying the load TOGETHER! It's because they are sold in *matched sets!*

And matching Texrope belts is more than just taking units from the same mould or production run. Now — with a newly developed measuring machine — every belt is tested in a grooved sheave running under normal operating tension . . . and the exact length to 1/100 of an inch is registered on a finely calibrated meter.

That's the kind of accuracy you want in the belts you buy for textile mill use! It means long, even wearing . . . and a transmission efficiency up to 98.9%!

Developed originally by Allis-Chalmers for textile industry use, Texrope Drives are helping mill operators to cut costs. With these drives, there is no slipping or jerking . . . no snapping of fragile yarns on spinning frames . . . no spattering of oil on goods. Production is made more steady . . . with maintenance costs on spinning frames sharply reduced!



ALTHOUGH DRIVEN BY A 90 RPM diesel engine with extremely severe power impulses, the thirty six belts on this generator act as a unit, sharing the load equally . . . because they are matched as a set!

Cut Costs With Texropes!

Get in stride with the times . . . follow the lead of other progressive mill operators who every day are cutting costs with Texropes. Learn how you can save in your mill with long-wearing Texrope Drives in *matched sets!*

There's a trained engineer in the district office near you who will be glad to explain Texrope features . . . to show you how you can cut your power transmission costs. Call him today. Or write direct to Allis-Chalmers.

1092A

Vari-Pitch Speed Changers • Texrope V-Belts • Duro-Brace Texsteel Sheaves • Vari-Pitch Sheaves • Standard Cast Iron Sheaves • Adjustable Pitch Diameter Texsteel Sheaves • 2-3-4 Combination Sheaves • Straitline Automatic Motor Bases • Oil Field Drilling Rigs

Belts by Goodrich

TEXROPE DIVISION

ALLIS-CHALMERS

MILWAUKEE · WISCONSIN

Humidification Engineering

BOOSTS EFFICIENCY RIGHT DOWN THE LINE!

Consider humidification on the basis of the reduction in overhead it can bring to your mill . . . the increase in profit it can assure through a better product and proper regain. Then you'll see humidification as a *productive* process . . . as much a part of your production as carding or spinning.

Just as it would be false economy to install makeshift cards or frames, the installation of makeshift humidifying equipment shows up as a poor investment.

See that your humidifying equipment pays for itself – then pays you a profit! Let the Amco Engineer check your present system for possible improvements, or plan your new one so that each step of production may be surrounded by "money making air." American Moistening Company, Providence, R. I. . . . Boston, Mass. . . . Atlanta, Ga. . . . Charlotte, N. C.

AMCO HUMIDIFICATION

TAKE YOUR TEXTILE HUMIDIFICATION JOB TO THE TEXTILE HUMIDIFICATION SPECIALIST

4425 D
6162

"NORTHERN HARD MAPLE is Most Suitable for Our Requirements"

says

STARTEX MILLS

Spartanburg, S. C.

The crash mill weave room in the Startex Mills, floored with genuine Northern Hard Maple.

"BECAUSE

of its even growth, compact grain, and long tough fibre, which is not the case of maple flooring, so far as we know, obtained from other sections."

21

"**Due to the heavy weight of the machinery,** together with the vibration from its operation," says Startex Mills, "it is necessary for the flooring material to have the proper strength and sufficient elasticity so that it will not crack or split."

"For these reasons, we have been using the *Northern* Hard Maple for a number of years."

Not all Maple is *Northern Hard Maple*—and only Northern Hard Maple offers the extreme tough fibre and tight grain that comes from slow growth in the hardy Northern climate, which is responsible for this flooring's remarkable service and economy.

When it's *Northern* Hard Maple, you insure lowest maintenance cost and highest resistance to abrasion—almost permanent smoothness, greatest ease of cleaning, and maximum employee comfort and efficiency.

It is easy to make sure. Merely specify **MFMA*** Maple, and look for this trademark, carrying the Association guarantee, on the flooring you buy.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1794 McCormick Building, Chicago, Illinois

• • •

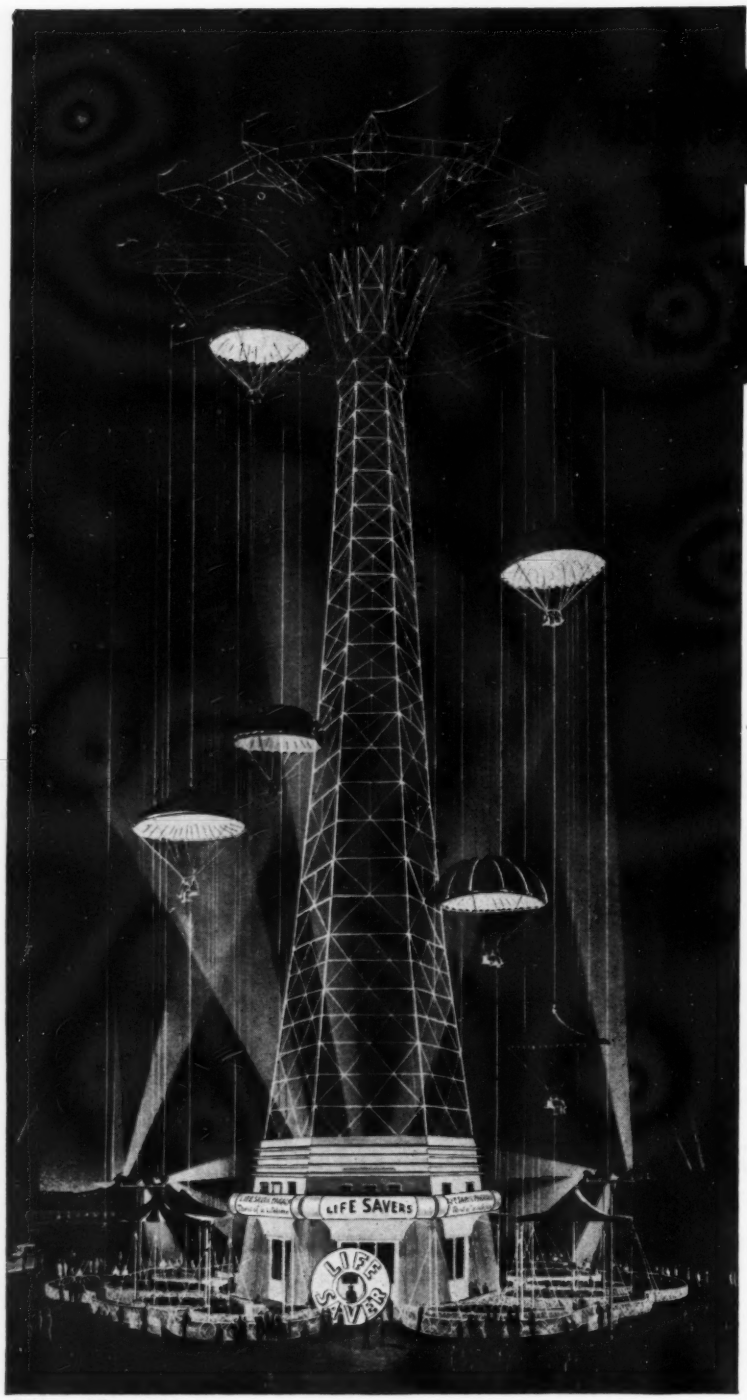
See our catalog data in Sweet's, Sec. 11/77.
Write for photographic folder on Northern Hard Maple and leaflet on heavy-duty finishes for old or new floors.

The **MFMA *trademark, indented and stamped on Maple flooring, guarantees it to be* GENUINE *Northern Hard Maple, graded and* **MFMA** *supervised in accordance with the Association's exacting standards.*

Floor *with* MFMA Maple

REG. U. S. PAT. OFF

(NORTHERN HARD)



Holden and Stott, Architects

With good reason, International Parachuting, Inc. insisted on the finest of dyeing jobs for the eleven 'chutes for the "Life Savers" Parachute Tower at the New York World's Fair 1939. Colors had to duplicate as closely as possible those of "Life-Savers'" own gay candy products—by artificial light as well as by day. Another "must" was the ability to remain bright and clear throughout months of exposure to sun and weather. And all this had to be achieved with no possible risk of harm to the special parachute fabric.

Calco was asked to see the job through—and did. From shade-matching to delivery of dyes, formulae and instructions to the dyer himself.

And now, these gaily colored 'chutes are providing a new and thrilling kind of fun for Fair visitors. They are, too, tangible evidence of Calco's skill with dyes and chemicals—and of the kind of follow-through that helps make Calco dyes so satisfactory to use, whether the job calls for standard types or some tailor-made variation.

VISITING THE NEW YORK WORLD'S FAIR, 1939?

You'll want to enjoy the unique thrill of a ride on the "Life Savers" Parachute Tower.

For Color in Textile

Calco

THE CALCO CHEMICAL COMPANY, INC.
BOUND BROOK NEW JERSEY

Boston • Philadelphia • Providence • New York • Charlotte
Chicago • Paterson • A Division of American Cyanamid Co.

. . . an improved Spinning Ring with *Vitritex finish*

durable . . . smooth as glass

The Vitritex Finish assures "smooth-going" traveler performance from the moment these rings are installed. There are no unduly prolonged breaking-in periods. This new ring has a traveler surface which is wear-resisting and as "slippery as an eel."

IT'S IMPROVEMENTS ARE SIGNIFICANT:

LONG-LIVED PERFORMANCE — The finish is not merely a polished surface . . . the full thickness of the outer case is preserved.

UNIFORM SURFACES in all rings produce equality in tension and balloon.

TARNISH RESISTANT— The application of the finish seals the microscopic pores thus inhibiting the corrosive effects of atmospheric moisture and gases.

SMOOTH, GLASS-LIKE SURFACE has a desirable effect on traveler consumption, a factor of importance in any spinning room.

BREAKING IN — As a rule rings can be started at normal production speeds immediately after installation.

OUR ENGINEERING STAFF is anxious to give you more specific facts about the ring with the Vitritex Finish. Please write for bulletin C.

PAWTUCKET SPINNING RING COMPANY

(Subsidiary of Saco-Lowell Shops)

CENTRAL FALLS · RHODE ISLAND

PONSOL* Gray

RL PASTE

(PATENTED)

HERE is a new vat dyestuff manufactured by Du Pont. It is an anthraquinone derivative, belongs to the hot dyeing group and yields pleasing reddish shades of gray. These possess very satisfactory resistance toward most color-destroying influences commonly encountered.

Because of its good working properties and its very good fastness to light and power laundering with chlorine, Ponsol Gray RL Paste should prove of ranking interest to the processor of shirting and other materials which require superlative fastness.

It is particularly suited to Franklin machine package dyeing, pigment-pad jig work and also for continuous dyeing. Therefore, this product may be recommended for both solid and woven shirting shades.

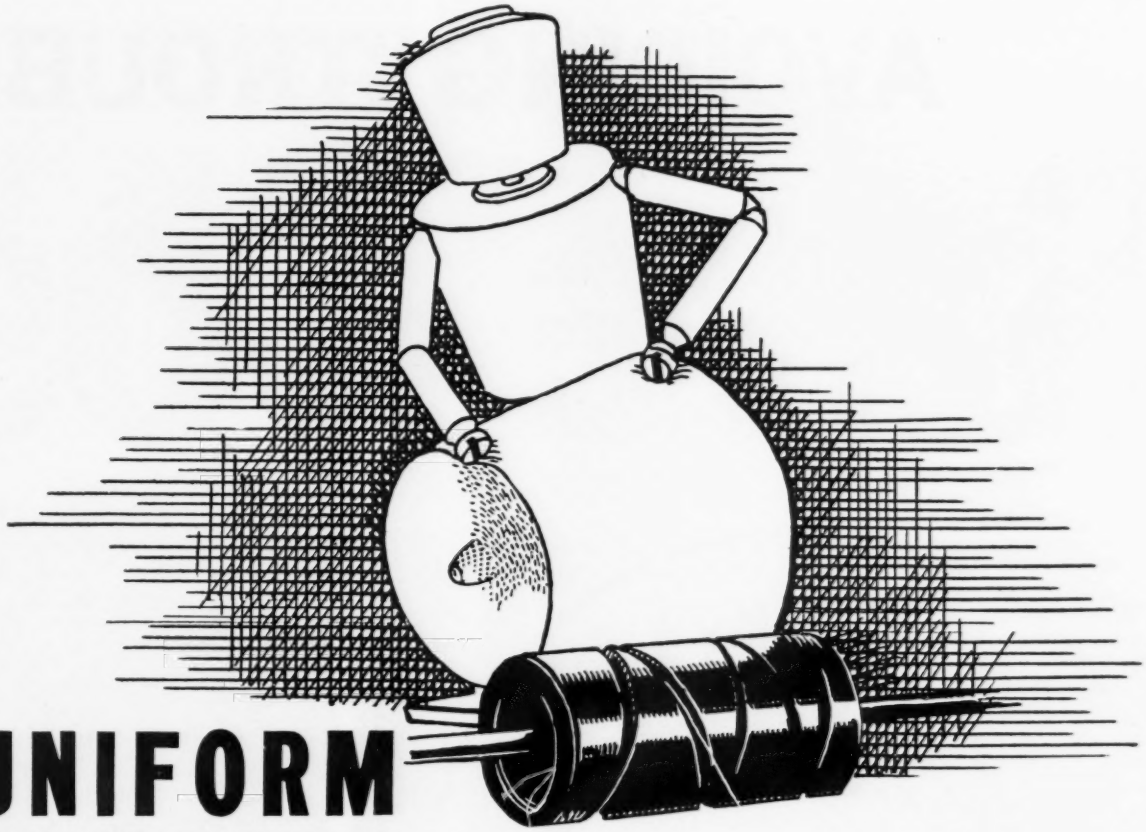
The reduced vat of Ponsol Gray RL Paste is very stable, and rigid adherence to Du Pont quality standards insures a product of constant uniformity. For color permanence there is nothing finer than a vat dye.

DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

E. I. DU PONT DE NEMOURS & COMPANY, INC.

Organic Chemicals Department, Dyestuffs Division, Wilmington, Delaware, U. S. A.

*REG. U. S. PAT. OFF.



UNIFORM DENSITY... *from end to end from inside to outside*

Knitters purchasing cotton yarns wound on the Leesona-built Roto-Coner are assured of soft packages with uniform density . . . the result of three design features of the winder.

1. The groove in the rotating traverse reverses the yarn quickly at the ends of the traverse. Since the yarn delivers to the package at the point where package and roll contact, there is no opportunity for the yarn to "dwell" and cause hard ends.

2. The winding package lies slightly *across* the rotating traverse, not parallel with it. The driven part of the package is near its center, so pressure is *removed* from the ends.

3. The winding package rests against the *back* of the rotating traverse, not directly on top. The cone holder arm is pivoted from below, and as the package builds up, the increasing weight of yarn does not add pressure to the inside layers.

Proof of knitters' satisfaction with Roto-Cones is found in this statement from a yarn mill equipped 100% with Roto-Coners: "All our customers, without exception, are highly pleased with the new packages we are supplying them."

From dyers we have received similarly complimentary reports about packages wound on the Roto-Coner. Dye penetration is more even, and the results more uniform. Typical is the approval of a boss dyer in a large plant: "The best package for dyeing I've ever handled!"

Have you the Latest Roto-Coner Bulletin?
No. 144 for Yarn Mills, Knitters and Dyers
No. 244 for Weaving Mills

ROTO-CONER LEESONA

UNIVERSAL WINDING COMPANY P.O. BOX 1605 **PROVIDENCE, R. I.**

BOSTON PHILADELPHIA UTICA CHARLOTTE ATLANTA

AVOIDING "TROUBLE"

Save Cost

THE SUM OF THESE FOUR SAVINGS

4

1. REDUCED POWER CONSUMPTION
2. MORE CONTINUOUS PRODUCTION
3. DECREASED MAINTENANCE
4. LOWER LUBRICATION COSTS

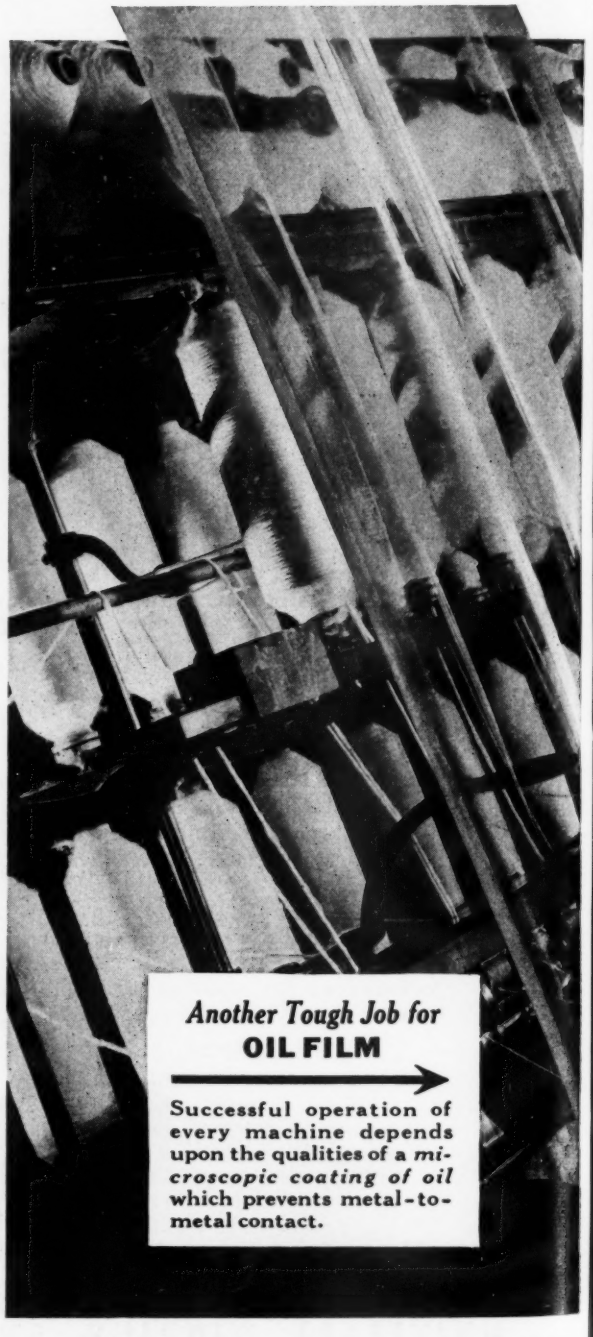
= LUBRICATION PROFIT

EXECUTIVES who are probing costs soon find that "trouble-free" operation is not enough. Machines that seem to be running smoothly...

—may be slowing up production, requiring too much power, too much oil, and even too much maintenance!

These are profit leaks the Socony-Vacuum man is trained to ferret out. His backing of 73 years' experience enables him to give sound engineering advice in effecting economies, and to recommend Gargoyle Lubricants exactly right for every use.

In thousands of plants, the Socony-Vacuum man's visit has not only resulted in "trouble-free" operation —but a substantial Lubrication Profit as well!



Another Tough Job for **OIL FILM**

Successful operation of every machine depends upon the qualities of a *microscopic coating of oil* which prevents metal-to-metal contact.

ISN'T ENOUGH...

s 4 Ways!

SOCONY-VACUUM

Industrial Service and Lubricants Help to Lower Costs by

Correct Lubrication

GARGOYLE Lubricants

SOCONY-VACUUM OIL CO., INC.

Standard Oil of New York Division · White Star Division
Lubrite Division · Magnolia Petroleum Company
Chicago Division · White Eagle Division · Wadhams Division
General Petroleum Corporation of California

Announcing...

THE RAYON YARN THAT OPENS A NEW ERA IN WEAVING

Industrial Rayon Corporation proudly presents the unmatched product of its new Painesville plant, climaxing seven years of research and development costing $2,000,000 and an $11,500,000 investment in machine and factory construction.

This announcement introduces a rayon yarn that establishes new standards of excellence. It marks the dawn of a new day in the rayon weaving industry.

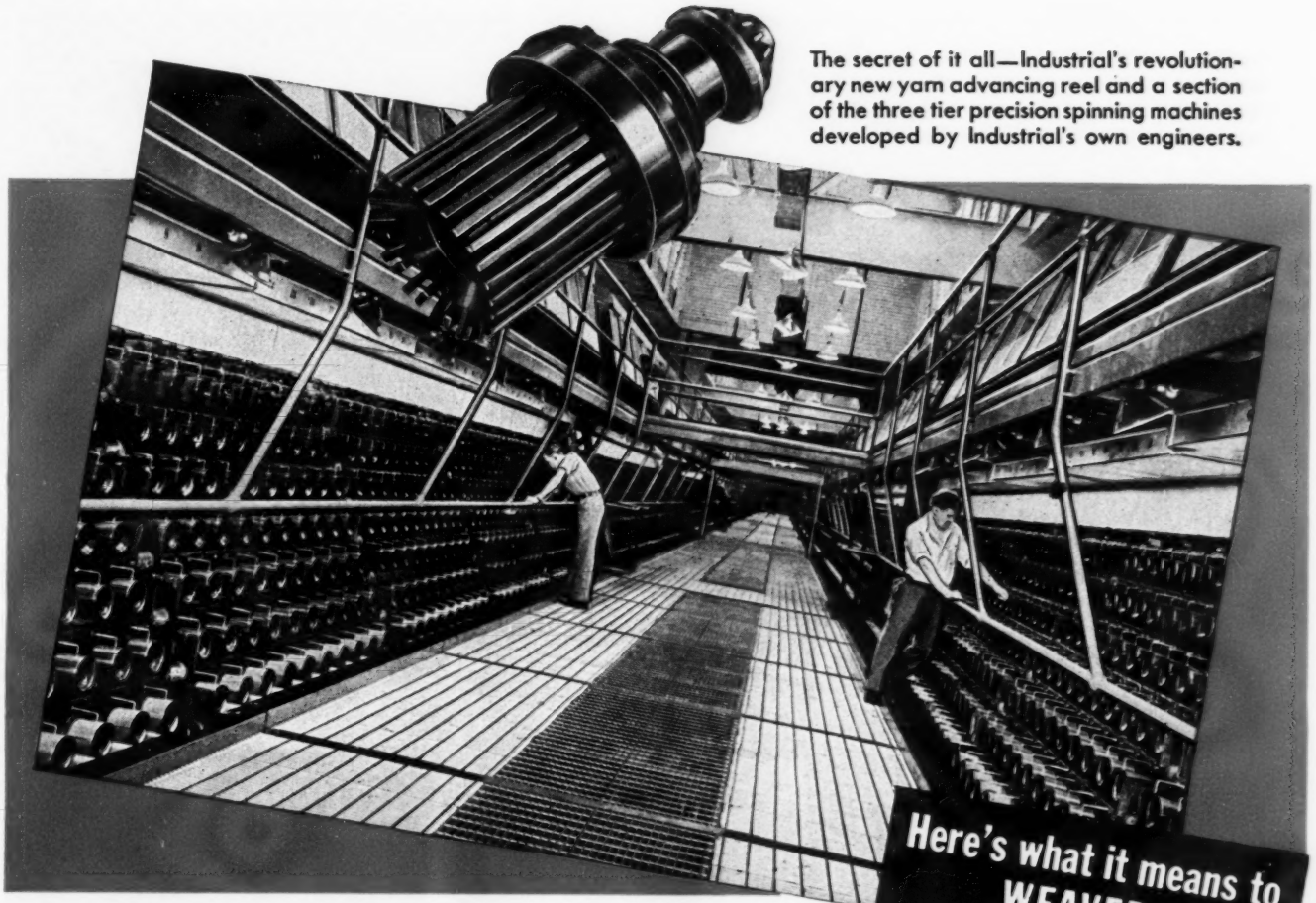
This new yarn is spun, bleached, treated, dried and twisted before it is ever wound into a package or touched by human hands. It moves continuously forward through processing liquids, cleansing baths, and over drying reels as a single thread until it has been completely prepared for the textile mill.

The new SPUN-LO for weaving is not just the result of surface changes or minor differences, but a yarn basically unlike anything ever before obtainable. It has proven itself under the stress and strain of loom and cutter. The great new plant has swung into full operation—a new standard of yarn excellence awaits weavers everywhere.

THE NEW *Spun-lo

*Reg. U. S. Pat. Off.

INDUSTRIAL RAYON CORPORATION



The secret of it all—Industrial's revolutionary new yarn advancing reel and a section of the three tier precision spinning machines developed by Industrial's own engineers.

Here's what it means to WEAVERS

Less loom stoppage, fewer seconds, lower production costs, and an all around better cloth.

Here's what it means to CONVERTERS and CUTTERS

Better woven cloth and less complaints about dyeing uniformity.

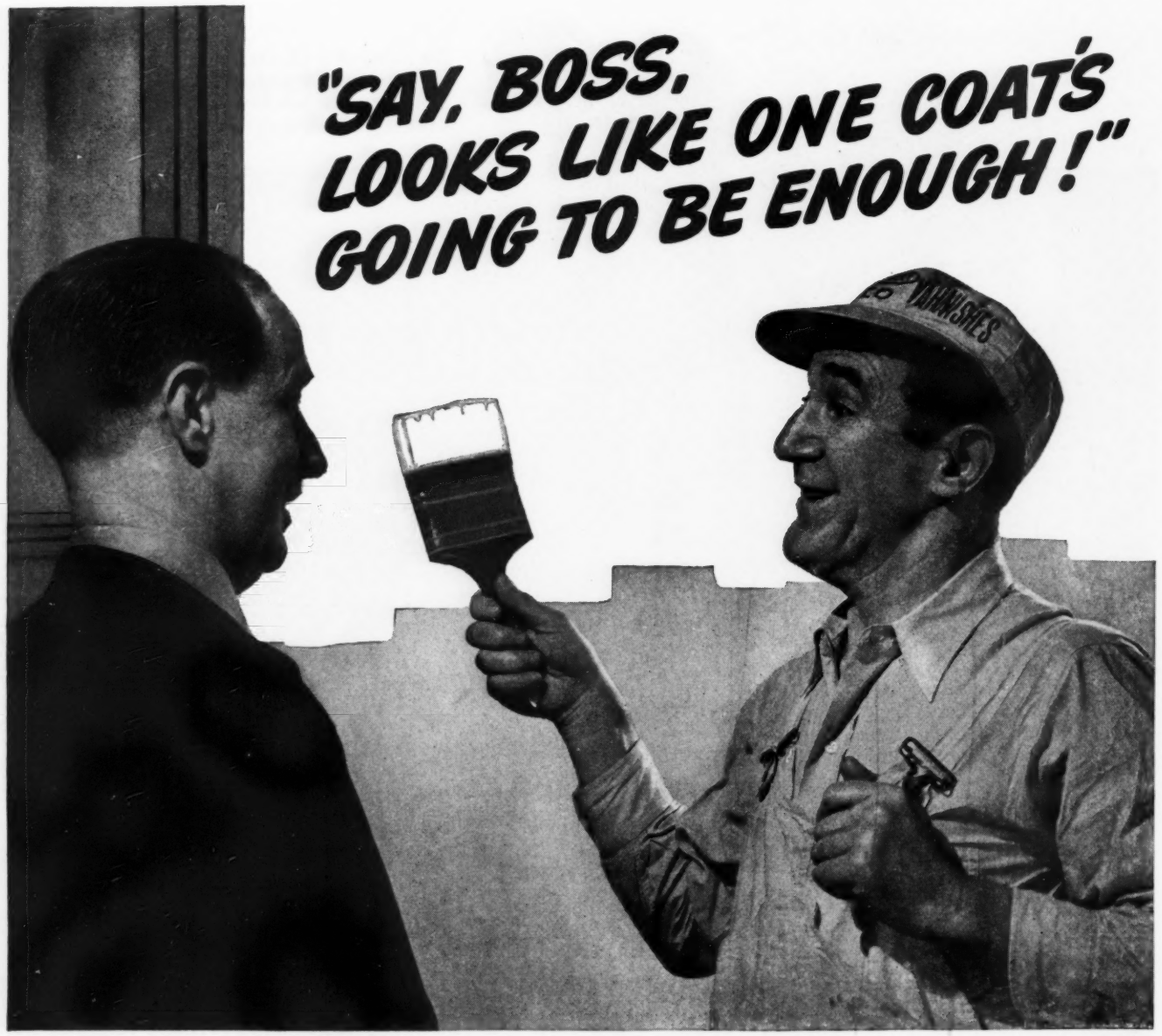
INDUSTRIAL'S NEW PROCESS ELIMINATES HANDLING AND TREATS EACH FILAMENT INDIVIDUALLY FROM START TO FINISH. AS A RESULT, HERE ARE SOME OF THE SPECIFIC YARN IMPROVEMENTS AND DEFINITE ADVANTAGES

1. **PRACTICAL ABSENCE OF KNOTS.** Tests show it is common for the new SPUN-LO yarn packages to run knotless and unbroken in a 2½ pound cone.
2. **A MINIMUM OF SLUBS, BROKEN FILAMENTS.** Among other things this reduces the bothersome "puff balls" behind weaving reeds.
3. **UNIFORMITY OF LUSTRE.** Both within the package and from package to package. Tests show no difference in the yarn turned out by the first and last machine in Industrial's new plant.
4. **UNIFORMITY OF DENIER.** The machine-controlled accuracy of each step in the process makes this a certainty.
5. **UNIFORMITY OF DYEING.** The individual thread treatment and the resulting uniformity make for unprecedented evenness in dyeing.
6. **UNIFORM HIGH STRENGTH.** Actual tests show it to have a higher uniform breaking point than any other rayon yarn now regularly used in the weaving industry.
7. **CLEANER PACKAGE.** The physical cleanliness of this yarn makes for better running conditions in the mill, general improvement in cloth quality and fewer seconds.

THIS NEW SPUN-LO yarn for weaving is widely regarded as the most revolutionary advance in the art of making rayon for the weaving trade. To fully grasp its meaning and to make the most of its possibilities, plant superintendents, dyers, designers, and other expert technicians in all phases of the industry, are invited to acquaint themselves fully with the new process.

Rayon FOR WEAVING

CLEVELAND • OHIO



NEW DULUX

REG. U.S. PAT. OFF.

HIGH-HIDING MILL WHITE

ALREADY this sensational new Du Pont Mill White is getting a big hand from mill operators.

For even when present paint is in only reasonably good condition, DULUX High-Hiding Mill White gives excellent results with *only one coat!*

This new mill white has all the standout qualities of regular DULUX Mill White—whiter initial whiteness, superior whiteness retention, long run economy. It saves money on overhead because it needs fewer *re*-paintings.

And DULUX High-Hiding Mill White costs less to apply. Its tremendously stepped-up hiding power means only one coat is necessary. If present paint is in very poor shape, a priming coat may be necessary. Fewer coats call for fewer gallons of paint to buy. One coat takes less time to apply than two or three . . . your machinery is idle for a shorter time.

If you would like full information about this amazing new mill white, just write to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Wilmington, Del.

DU PONT

E. I. DU PONT DE NEMOURS & CO., INC., FINISHES DIVISION, WILMINGTON, DELAWARE

HOT MONEY

YESTERDAY *one thief* stole more dollars from American Industry than *all* the "stick-up" men took from the public.

This industrial thief is FRICTION. His "hot money" is *your* money—represented in wasted power, rapid wear, costly delays and repairs.

To catch money-stealing Friction red-handed is the job of a group of scientists, engineers and technicians as skilled in their own art as are the "G-Men."

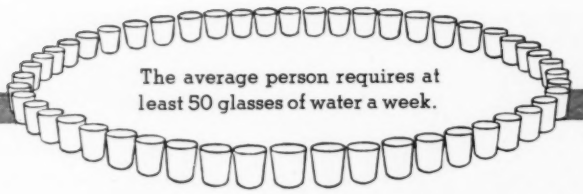
And these "friction-catchers" are at your service instantly, anywhere in America.

Shell keeps a force of them always ready. They are armed with friction-killing lubricants of numerous types and grades. And these Shell specialists have an enviable record for their *arrests* of friction. Thousands of big and little cases on big and little machines crowd their case-history files.

Call in the Shell lubrication man today. There is no charge for his help and no obligation to you.

SHELL

SHELL INDUSTRIAL LUBRICANTS



2 NEW FEATURES

INCREASE CAPACITY
•
CUT COSTS

A double barreled blast at water cooler operating costs. That's what Westinghouse engineers have delivered with two amazing new developments. First, a Special Capacity Booster that utilizes cold drain water to help cool incoming water. Second, a Cooling Chamber that steps up efficiency by over-all cooling action at both center and circumference.

Other Exclusive "PLUS VALUE" Features

Stainless Steel Top . . . Built-in Watchman Protection . . . Permanent Oil Supply . . . Burnout-Proof Motors . . . Hermetically-sealed Mechanism.

No grit, dirt, rust or corrosion . . . the things that cause most machinery to wear out, can harm the Westinghouse mechanism because it is Hermetically-sealed inside an airtight case of solid steel.

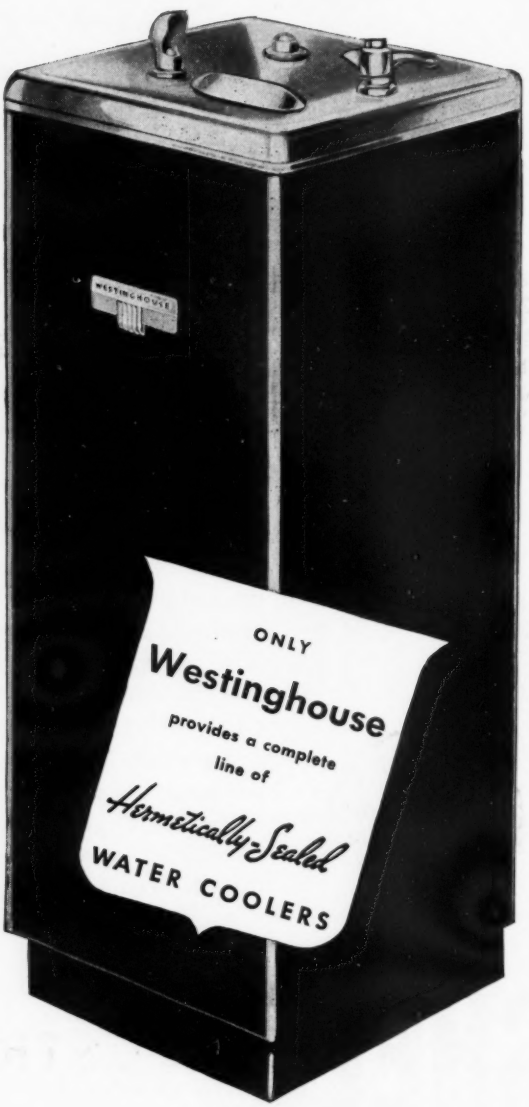
Because it is Hermetically-sealed, Westinghouse provides a plan for five years' protection on the sealed-in mechanism. This is based on the EXTRA years of trouble-free performance which experience shows you can confidently expect.

• • •

Westinghouse

WATER COOLERS

Explosion-proof models available

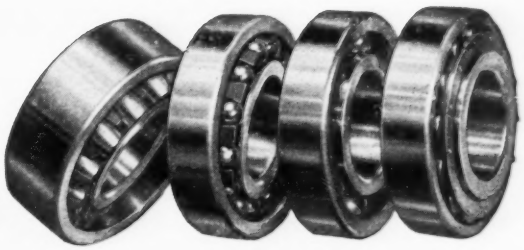


FREE. Ask your Westinghouse dealer for free copy of a useful folder—"How to Check Drinking Water Costs" or mail this coupon to—Westinghouse Electric & Manufacturing Company, Section 9097, Mansfield, Ohio.

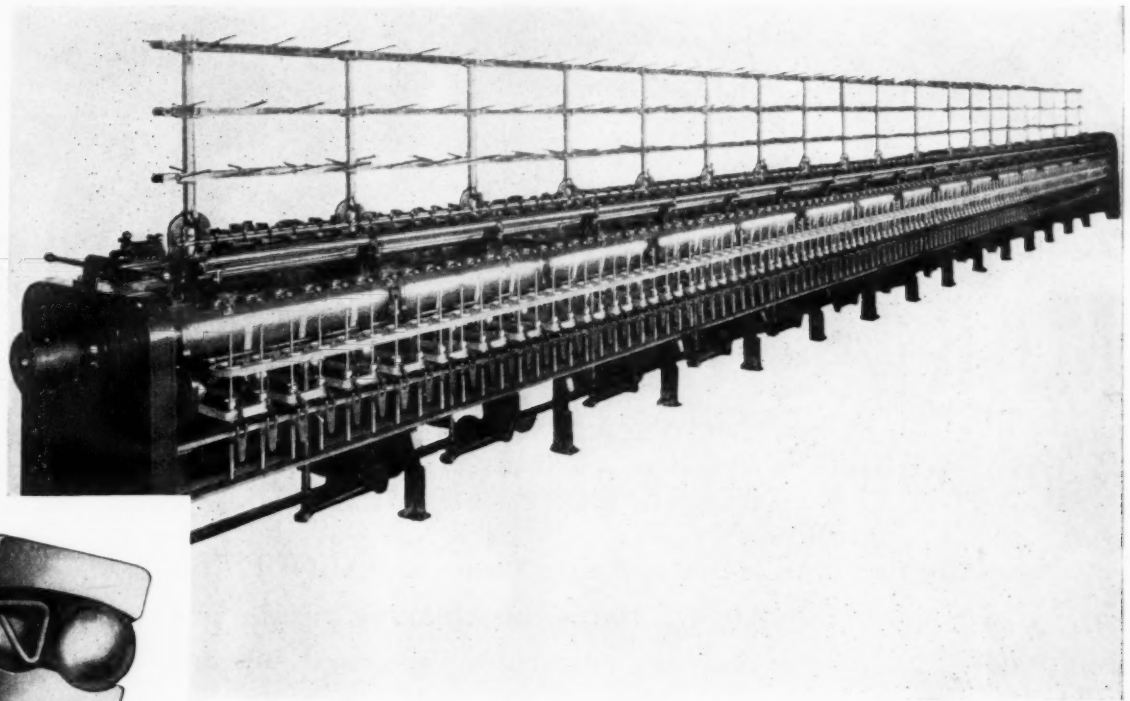
NAME_____

ADDRESS_____

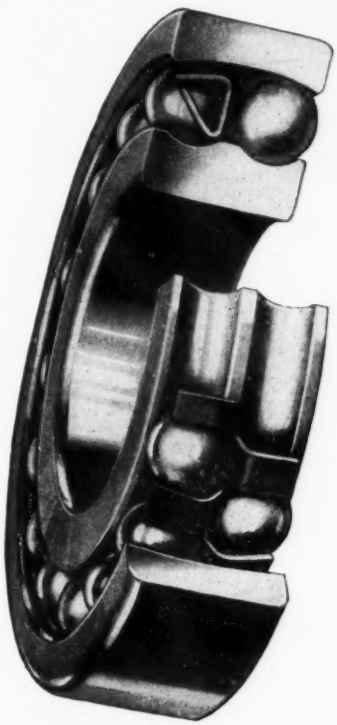
CITY_____ STATE_____



PROFITS FROM TWISTERS DEPEND ON GOOD BEARING PERFORMANCE ALWAYS



● *Built by H & B American Machine Co.*



IF THE BEARINGS ARE SKF, PRODUCTION STEPS UP FROM 2% TO 10% OVER PLAIN-BEARING EQUIPPED FRAMES

● Modern textile mill executives must count on the individual performance of thousands of spindles, tension pulleys and cylinder bearings for *profits* from their spinning and twisting frames.

When they use SKF Spindles, Tension Pulleys and Cylinder Bearings on H & B Twisters, they can obtain 15% to 25% lower input power consumption, a higher average breaking strength, and 2% to 10% greater production than from frames equipped with corresponding plain bearings. In addition, maintenance and lubrication costs are lowered, a more uniform twist is obtained, and tape life is lengthened 15% or more.

Spindles, tension pulleys and cylinder bearings should be selected on the same basis of efficiency and ability to produce quality yarn at a profit as spindle operators, section hands, and overseers. Ask any textile spindle manufacturer for a copy of our new catalog, "Better Spinning and Twisting", or write direct.

4358

SKF

Ball and Roller Bearings

SKF INDUSTRIES, INC., FRONT ST. & ERIE AVE., PHILA., PA.

WHEN THE RESULTS ARE ANALYZED . . .

"THIS NEW SPINDLE HAS REDUCED OUR COSTS— AND IS GIVING US BETTER YARN!"

YOU'LL GET A GOOD REPORT ON THE PERFORMANCE OF

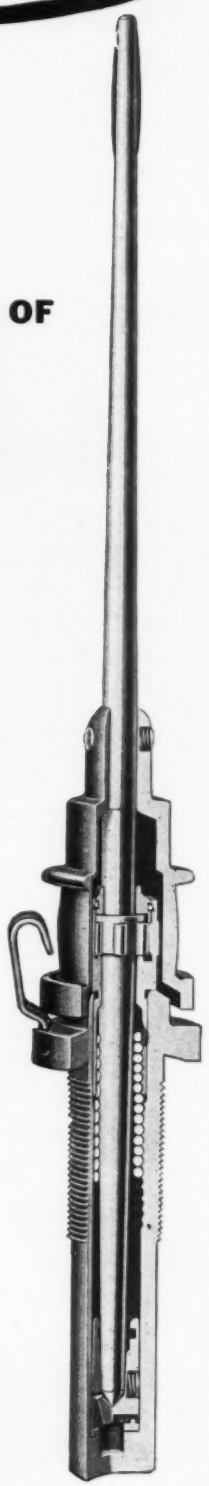
MARQUETTE NOVIBRA

(PATENTED CONSTRUCTION)

HIGH-SPEED ROLLER-BEARING SPINDLE

More and more mills are running tests on MARQUETTE NOVIBRA spindles. Always the same amazing results are obtained—higher speeds, less vibration, increased output, reduced power consumption, better yarn (with fewer interruptions and less breakage), higher efficiency of operators, lower maintenance costs and longer tape life.

This is the famous NOVIBRA spindle that has been so successful in Europe for 15 years . . . now made in America! *Investigate its many exclusive advantages.* **Write for illustrated circular, or get in touch with our nearest representative.**



THE MARQUETTE METAL PRODUCTS CO.

1170 GALEWOOD DRIVE
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908 WOODSIDE, BLDG.
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A COMPLETE TECHNICAL SERVICE FROM BOIL-OFF TO FINISH

NEW fibers...new finishes...new fabrics present new problems to the Textile Industry. The products of the General Dyestuff Corporation in addition to a vast range of dyestuffs for the dyeing and printing of every fiber and combination of fibers include a comprehensive range of scouring, wetting and penetrating agents, emulsifiers, dyeing auxiliaries, softeners, water repellants and permanent moth proofing agents. To keep in step with changing demand calls for advanced technical knowledge and practical skill. The Technical Service Department of the General Dyestuff Corporation is equipped with a personnel and laboratory facilities to give you efficient assistance in economically solving the problems of boil-off, dyeing, printing and finishing. Our Technical Staff are recognized authorities in their respective fields.

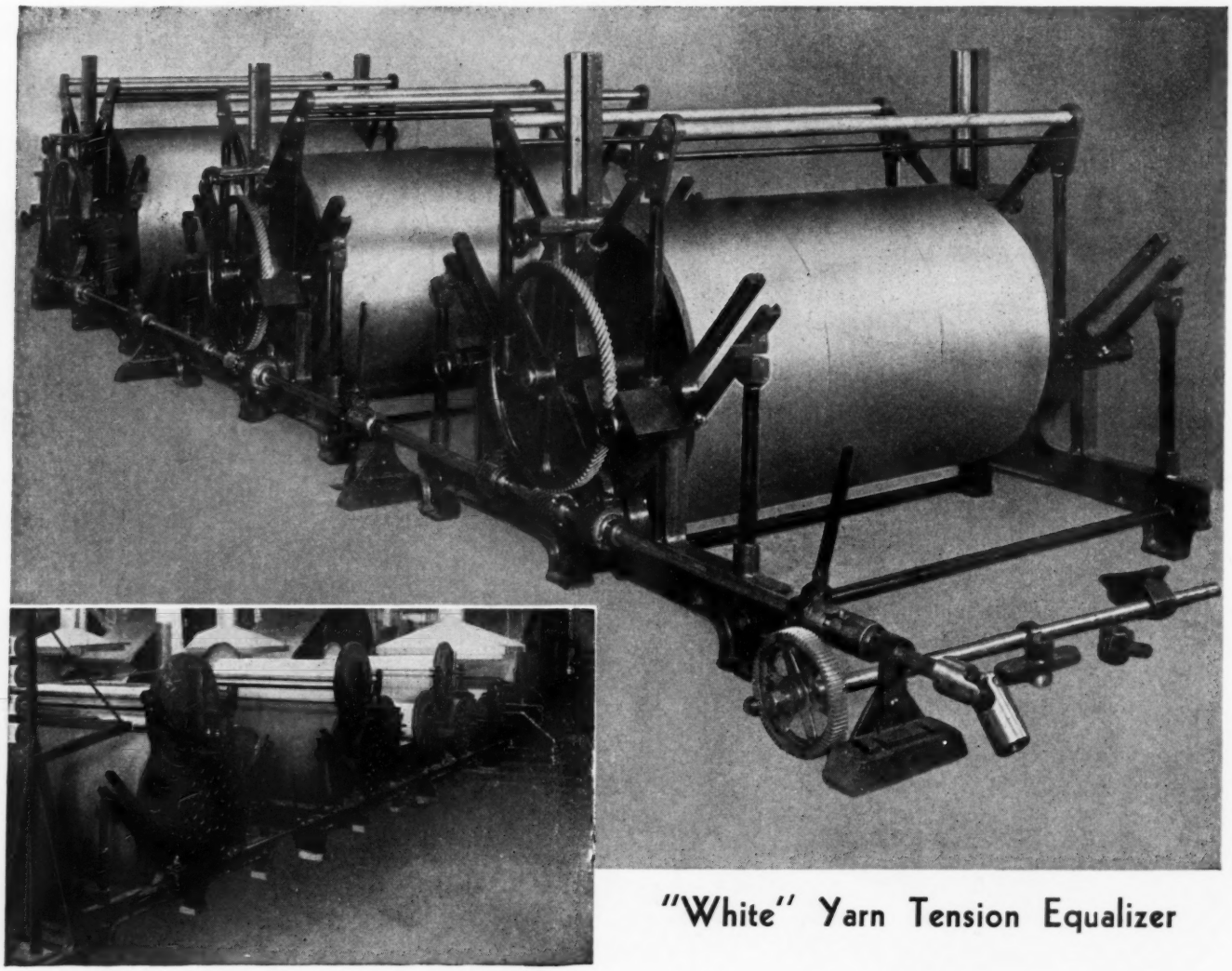
We offer you a Technical Service from the greige goods to the finished fabric.

GENERAL DYESTUFF CORPORATION

GDC

435 HUDSON STREET, NEW YORK, N. Y.

Boston, Mass. Providence, R. I. Philadelphia, Pa. Charlotte, N. C. Chicago, Ill. San Francisco, Calif.



"White" Yarn Tension Equalizer

The Answer To Your Slasher Creel Problems!

A positively driven slasher creel that removes the yarn from section beams and delivers it to the sizing vat with or without tension as desired. Each unit is capable of handling three beams, and as many units as are desired may be coupled together to give the required beam capacity. Each beam is in contact with the positive driven equalizing drum, and when slasher is running, the same amount of warp yarn is removed from each beam regardless of the diameter of the warp roll. The yarn is removed without tension or strain, practically eliminating breakage and loose ends. Beams having the same amount of warp at start of set will all empty at the same time, cutting the waste to a minimum. It is the answer to your creel problems.

We also manufacture special equipment that enables a slasher operator to regulate the warp tension during the slashing process. When used in conjunction with the "White" Yarn Tension Equalizer, an absolute control of warp tension is secured. Regulation is sensitive and easily adjusted.

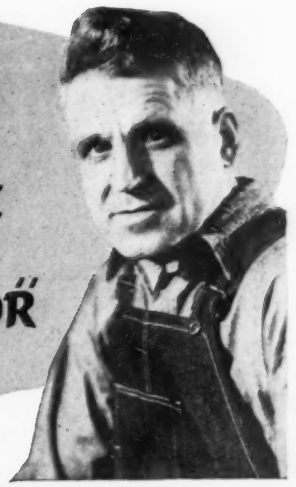
Also manufacturers of loom beams, West Point Energy Loom Drives cloth room machinery, textile machinery parts and gears, special textile machinery.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA

MACHINERY MAINTENANCE IS A CINCH. NOW WE'RE USING THE SET SCREWS WITH "THE THIRD FACTOR"



UNBRAKO

SELF-LOCKING HOLLOW SET SCREWS with the knurled points are 1-STRONG 2-ACCURATE and 3-*WON'T SHAKE LOOSE*

The mechanics and maintenance men who have used "Unbrako" Self-Locking Set Screws know that once they are set up with only normal pressure, they positively stay put. No need for continual check-ups . . . and no danger of the accidents or machinery breakdowns that can follow ordinary set screws failing to hold tight. The ingenious knurling around the cup point locks them in place . . . yet removal can be made with an ordinary hex bar wrench whenever machine adjustments are necessary and the screws used over again many times. Take no chances—specify "Unbrako" Self-Lockers . . . send for samples and literature today.

Fig. 1645

Pat. Applied for

Fig. 1646 Pat. App. for

UNBRAKO

SQUARE HEAD SET SCREWS *have this protection feature, too*

Our Square Head Set Screws, known and liked throughout the industry for years can now be furnished with the knurled self-locking points. Safety added to quality gives them undeniable superiority.

STANDARD PRESSED STEEL CO.

BRANCHES: BOSTON, DETROIT, INDIANAPOLIS

JENKINTOWN, PENNA.

Box 582

BRANCHES: CHICAGO, ST. LOUIS, SAN FRANCISCO

Send me samples and all the facts about

☐ "UNBRAKO" Self-Locking Hollow Set Screws.

☐ "UNBRAKO" Self-Locking Square-Head Set Screws.

Name..... Title.....

Company .....

Address .....

PARKS TRAVELING CLEANERS

bring Savings and Smiles

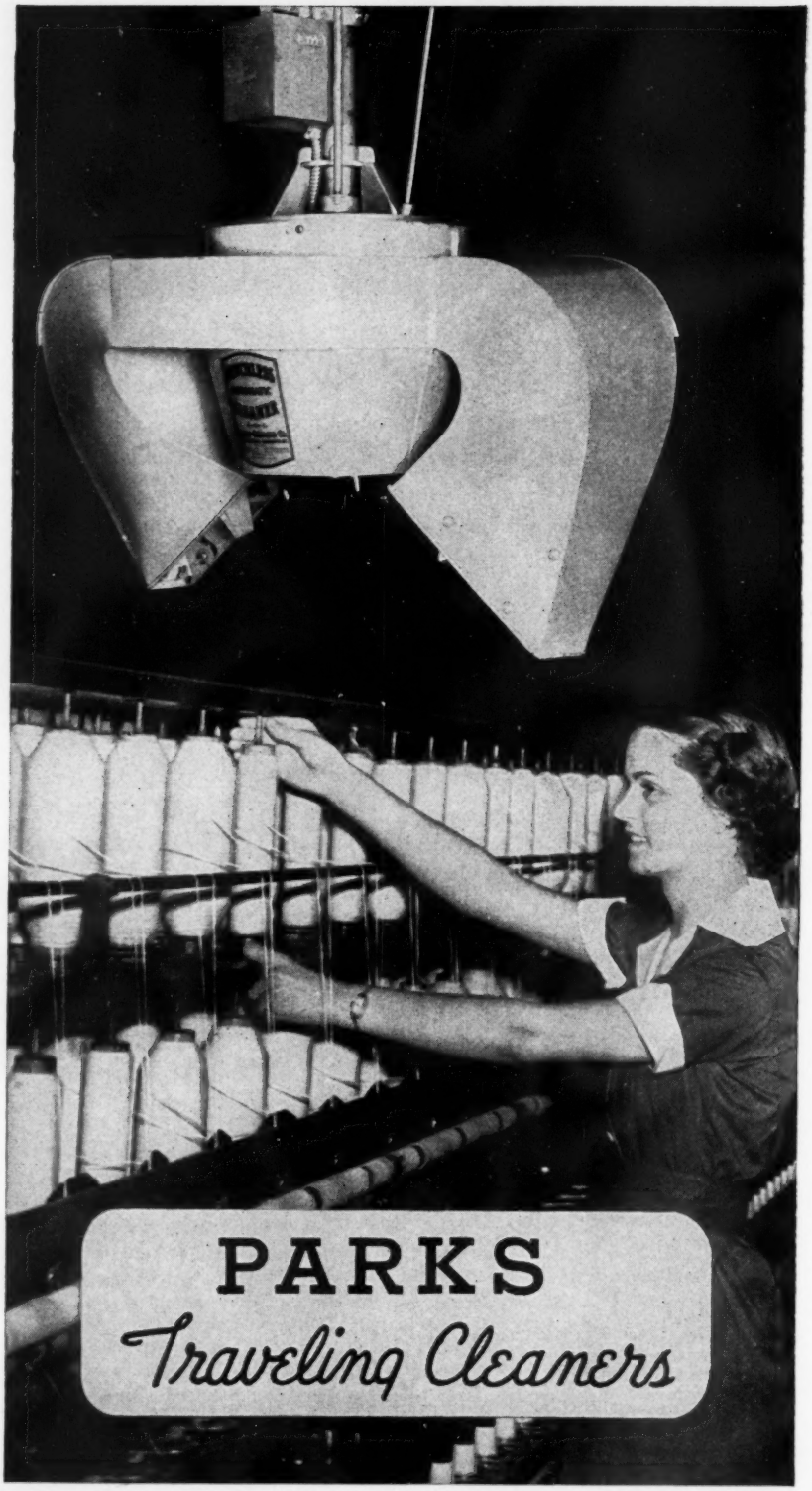
The rapid growth in number of installations of Parks Automatic Traveling Cleaners since 1929 is proof of their accomplishments.

Users say a lot of nice things about them:

"Advantages of the Traveling Cleaner system are numerous. It certainly does cut down, practically eliminates, the cleaning the spinner has to do. It has cut our gouts decidedly; we checked that in the spinning room and found less than half as many after installing the Cleaners. The Cleaners are not expensive to keep up; no expense for maintenance and supplies in four years of use."

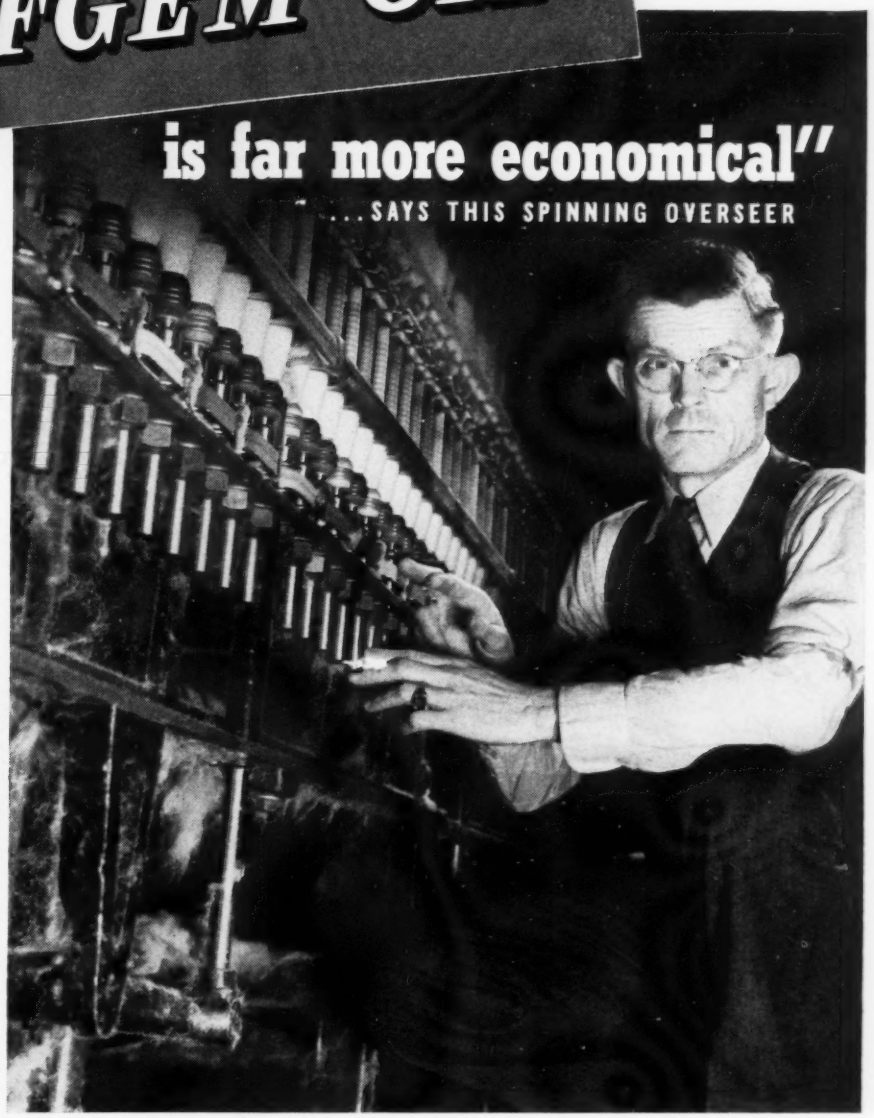
"Tests made before and after installing the Traveling Cleaners showed loom stoppage was reduced 39% in one mill and 32% in another, evidence of improved quality and production."

You need this helpful accessory. Send for a sales engineer to give you more details, prices and experiences of others.



PARKS-CRAMER CO • FITCHBURG, MASS. • CHARLOTTE, N. C.

"We have proved that GULFGEM OIL is far more economical"



"Our spindle lubrication is more efficient and our maintenance costs lower"

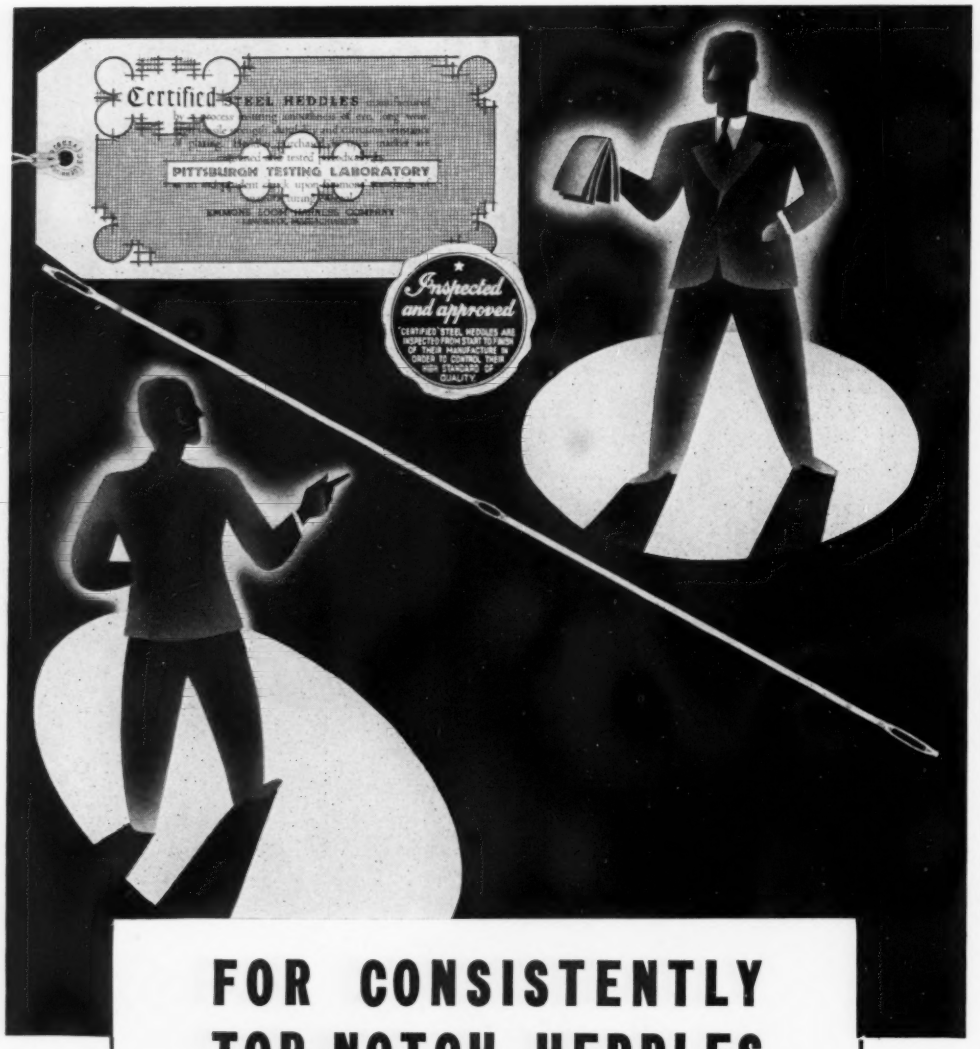
"WE have proved to our own satisfaction that Gulf's higher quality lubricants are far more economical to use in the long run," says this spinning overseer. "We use nothing but GULFGEM OIL for our spindles and GULFCROWN OIL for our roll necks and saddles."

The wide use of these quality oils in mills throughout the country is largely due to this fact: they have been treated and purified by Gulf's exclusive ALCHLOR process! By the use of this famous refining process, oils with greater stability than any of which we have record can be manufactured. Thus long service with minimum deterioration and a low rate of consumption are assured.

Many mill managers are reporting appreciable savings in spinning room power consumption after GULFGEM OIL has been adopted. Its high resistance to oxidation and gumming insures minimum friction drag in spindles — and lower power bills.

Ask the Gulf engineer who calls on you to recommend the proper grades of these higher quality lubricants for your equipment. You will be under no obligation. . . . Gulf Oil Corporation — Gulf Refining Company, Gulf Building, Pittsburgh, Pennsylvania.

GULF INDUSTRIAL LUBRICATION



FOR CONSISTENTLY TOP-NOTCH HEDDLES

WE GIVE YOU 2 ASSISTANT P.A.'S

TWO sets of experts are working to insure you a constant supply of the finest steel heddles, when you buy from Emmons. One set is our own rigorous inspectors, who test and try each shipment of heddles before it receives the required "Inspected & Approved" seal.

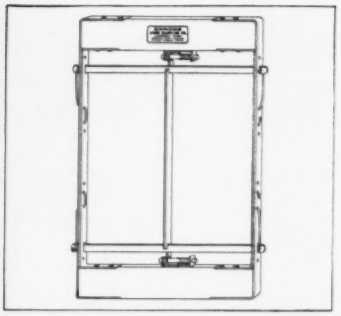
The other set of experts are in the Pittsburgh Testing Laboratory. At regular intervals, they buy Emmons steel heddles in the open market and subject them to strenuous tests for . . . . .

- eye-smoothness
- flexibility
- rust-proof finish
- strength

Their constant *outside* check on our *inside* inspection is attested in the "Certified" tag. Buy Emmons double-checked "Certified" Steel Heddles, and be sure.

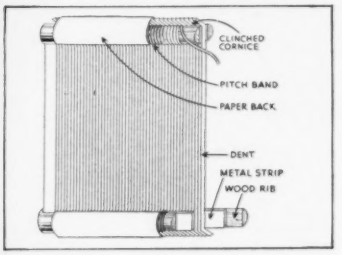
★

THE WEAVER'S CORNER



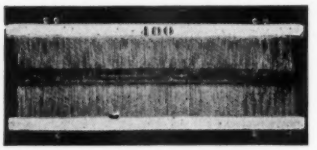
NEW PATENTED BRACE BAR

Brace bar locking device permits quick removal without interfering with heddles or warp ends. Rigid assembly — no sway in any direction.



FLEXBAC REEDS—Born of Modern Engineering

A *full inch* of additional flexing distance—much *quicker* flexing back of the dents than in ordinary pitchband reeds—give you considerably longer trouble-free reed life.



CHAFELESS CORD COTTON HARNESS

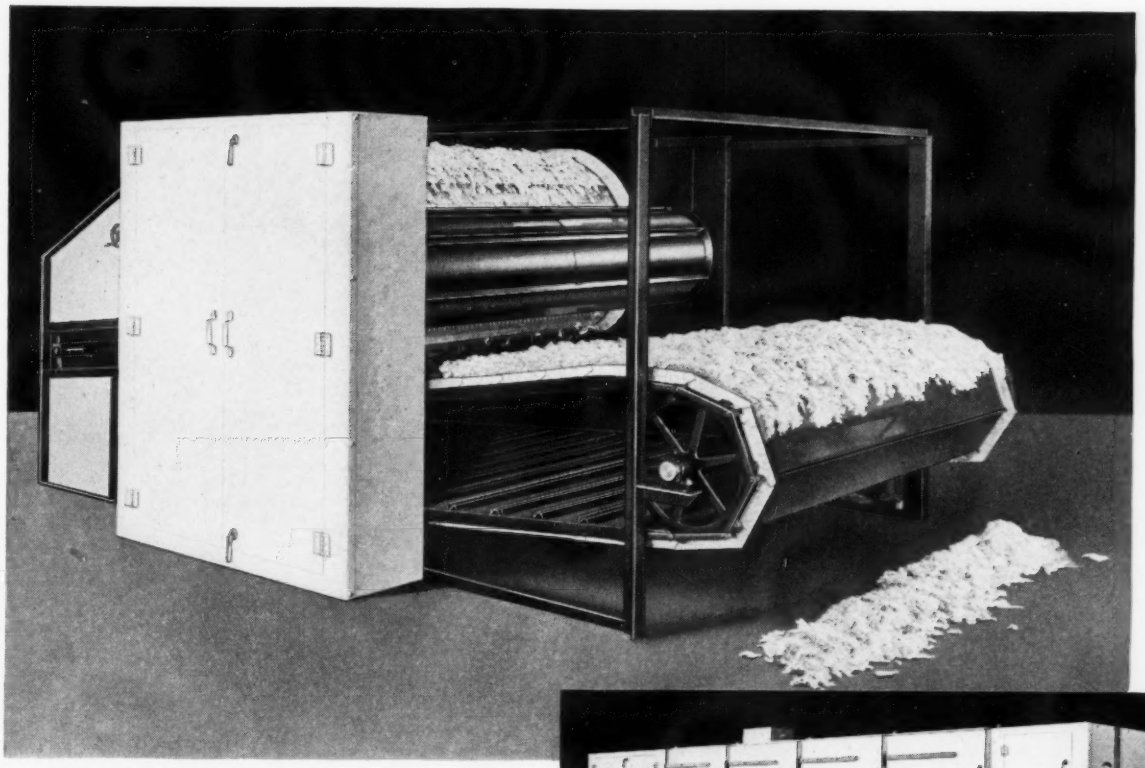
Long staple cotton—5 coats of special varnish—48 hours' baking—mean extra strength, extra smoothness and absolute humidity protection.

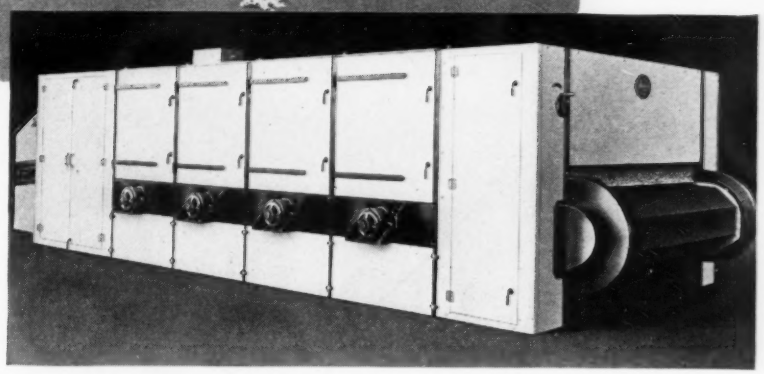
Write for information on latest Emmons Reed developments.

Emmons

EMMONS LOOM HARNESS COMPANY
Lawrence, Massachusetts · · · Charlotte, N. C.

"CERTIFIED" STEEL HEDDLES · MULTIPLIED YARN SPACE REEDS · CHAFELESS CORD COTTON HARNESS





How TO REDUCE LABOR COST IN THE RAW STOCK DYE HOUSE

THESE photos illustrate the newest aid to lower cost and higher production automatic feeding and drying—the Hunter Duplex Dryer and novel Rotary Feeder built as an integral part of the dryer.

In approximately 40 linear feet of floor space the duplex dryer is producing slightly over 1000 lbs. per hour on sulphur colors, and as high as 1300 lbs. on other cotton colors.

The Hunter Rotary Feeder completely eliminates the usual droppings, eliminates vertical apron replacement, and with its driven cleaning roll reduces clean-up time to a minimum.

When used with Hunter hydraulic squeeze rolls and blower systems, you get completely automatic and continuous operation from the dye kettle to the dryer discharge.

For complete information mail the coupon.

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS.

•

Southern Agents:

CAROLINA SPECIALTY CO., Charlotte, N. C.

Western Representative:

E. G. PAULES, 343 Bendix Bldg., 1206 Maple St. Los Angeles, Cal.

JAMES HUNTER MACHINE CO., North Adams, Mass.

Please send me Bulletin RF which gives newest information on Automatic Feeding and Drying.

Name..... Title.....

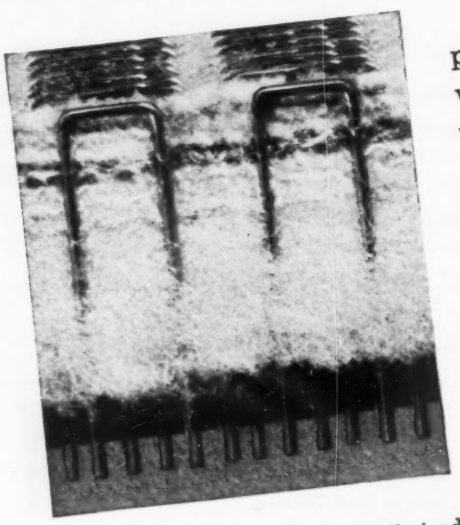
Company .....

City..... State.....

TUFFERIZED Card Clothing

PATENT APPLIED FOR

soars to new heights of perfect uniformity



Micro-Photograph shows how Tufferized Card Clothing wires seat square, flat, and firmly into the foundation with wires parallel . . even in length . . spaced uniformly

With aircraft precision and exact calculations *new* precision machine parts produce Tufferized Card Clothing with each wire straight, spaced uniformly, even in length, without wire burrs, and with crowns flat and square.

Again engineering skill, master craftsmanship, and precision accuracy produce Tufferized Card Clothing which will lie flat and firmly on your cylinders and allow more accurate setting of your rolls. Tufferized Card Clothing gives economy of operation, smoother carding, and longer performance.

Write for additional information or ask our representative

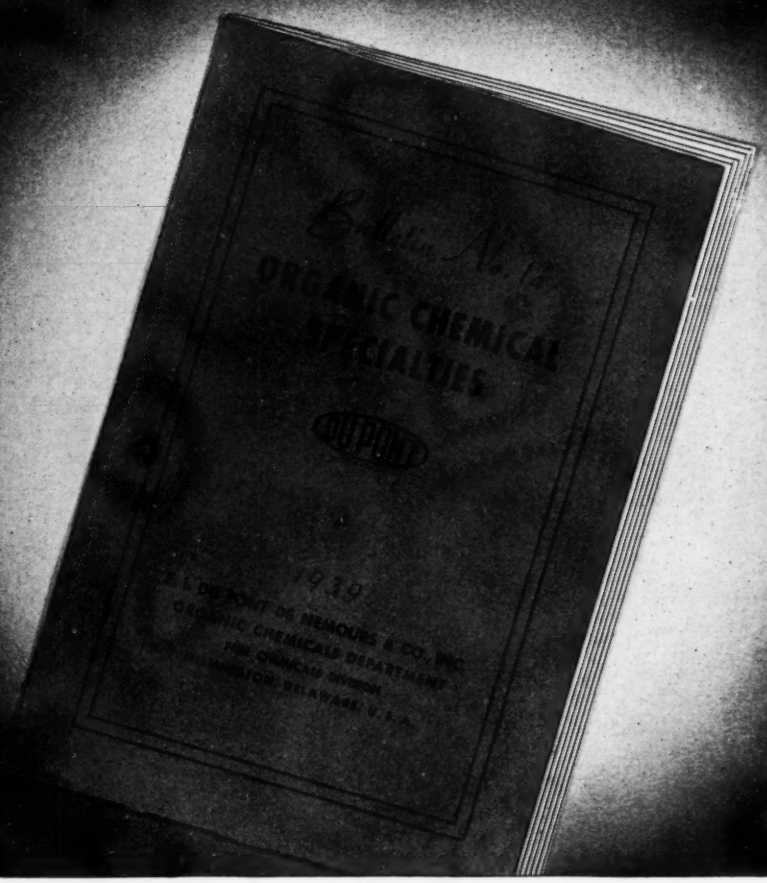
HOWARD BROS. MFG. CO.
WORCESTER, MASS.

HOME OFFICE AND FACTORY:
Branch Offices: Philadelphia, Dallas
Southern Plant: 244 Forsythe St., Atlanta
Canadian Agents: Colwool Accessories, Ltd., Toronto 2, Canada

Products: Card Clothing for Woolen, Worsted, Cotton, Asbestos, and Silk Cards—Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all plants—Lickerins and Garnett Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant—Midgley Patented Hand Stripping Cards, Howard's Special Hand Stripping Cards and Inserted-Eye and Regular Wire Heddles

Now Ready... **NEW EDITION**

OF THIS VALUABLE BOOKLET!



Contains information about Du Pont* ORGANIC CHEMICAL SPECIALTIES *for the textile industry

THIS 68-page booklet is packed with practical information in ready-reference form. Du Pont Fine Chemical Specialties—wetting, dispersing, scouring, emulsifying, foaming and other agents—and their uses are described. Convenient tables give wetting efficiencies, solubilities and textile use by process.

The products cannot be listed here—much less the many specialized uses in which these products are saving time and money, giving increased efficiencies. It will pay you to check your present practices against the recommendations in this booklet.

Write for a copy of Bulletin No. 1a today. And let us know your particular needs. We have on hand much information about certain uses that could not be included.

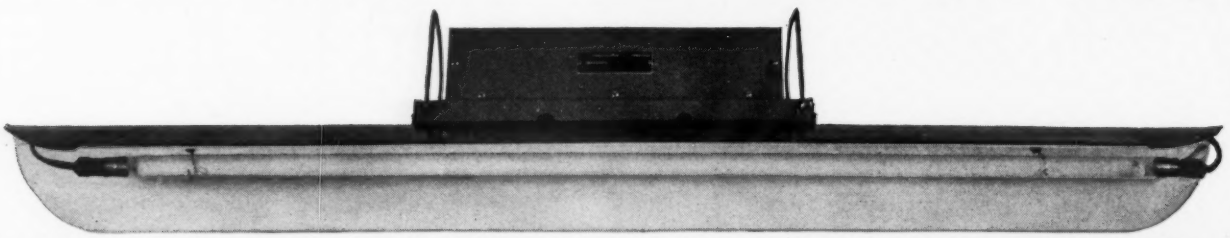
DU PONT

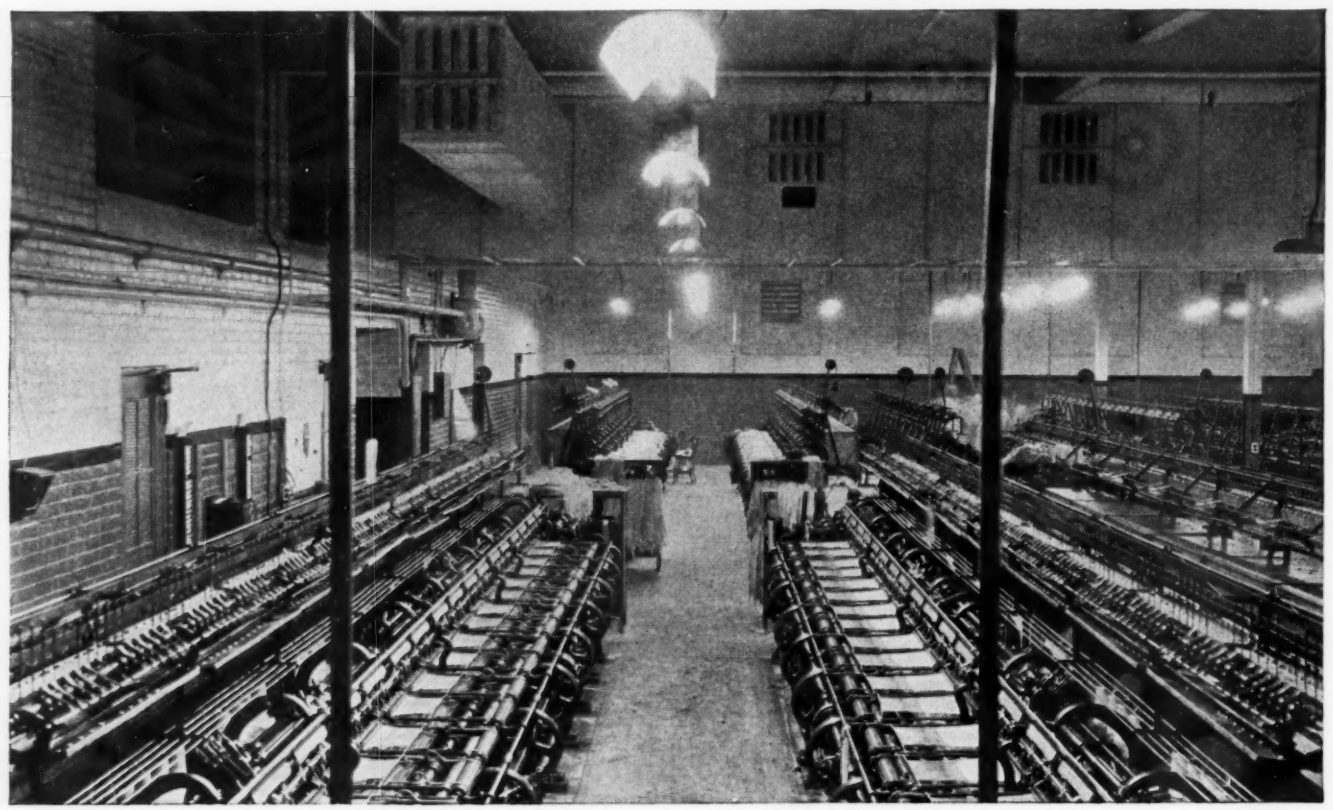
E. I. du Pont de Nemours & Co., Inc.
Organic Chemicals Dept., Fine Chemicals Div., Wilmington, Del.

Please send me a free copy of Bulletin 1a, "Organic Chemical Specialties." I am particularly interested in .....
.....for use in .....

Name .....
Company .....
Address .....
Position .....

Cool, Blue-White
COOPER HEWITT FLUORESCENT LIGHT





. . . magnifies details . . . aids production

THREADS are clearly defined—so distinctly as to appear magnified—under the detailing-revealing light of Cooper Hewitt fluorescent lamps.

OPERATORS can thus detect every break, tie broken ends quickly, easily. Inspection is simpler, production is increased.

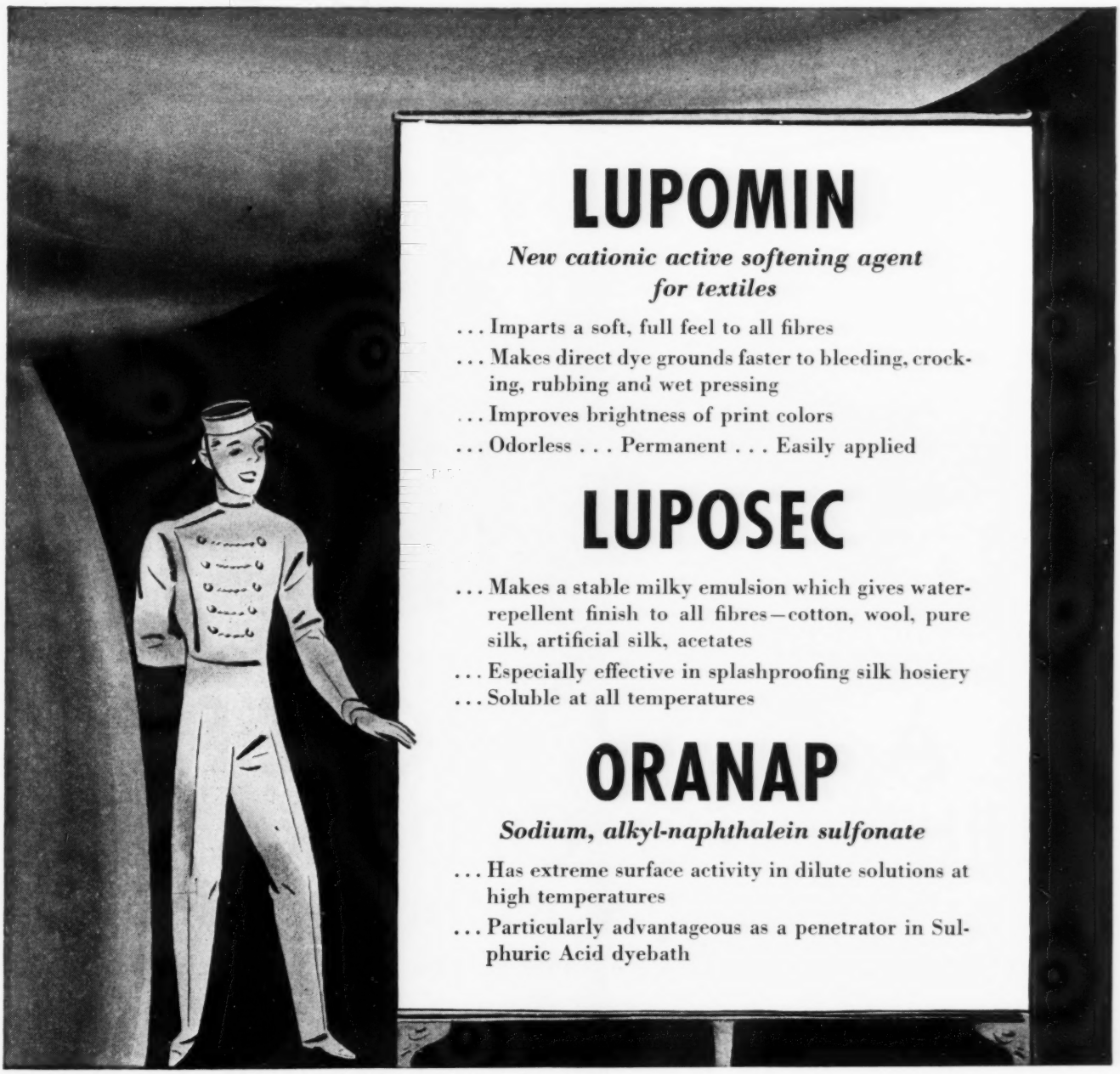
CONSUMING only 100 watts, the Cooper Hewitt fluorescent lamp has the greatest output of any lamp of equal wattage now on the market.

AIR CONDITIONING, where these high-efficiency fluorescent lamps are used, is more economical than ever before.

Why not write today for full details. Descriptive literature is available from General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, N. J.

GENERAL ELECTRIC VAPOR LAMP COMPANY

961F



LUPOMIN

New cationic active softening agent for textiles

... Imparts a soft, full feel to all fibres

... Makes direct dye grounds faster to bleeding, crocking, rubbing and wet pressing

... Improves brightness of print colors

... Odorless ... Permanent ... Easily applied

LUPOSEC

... Makes a stable milky emulsion which gives water-repellent finish to all fibres—cotton, wool, pure silk, artificial silk, acetates

... Especially effective in splashproofing silk hosiery

... Soluble at all temperatures

ORANAP

Sodium, alkyl-naphthalein sulfonate

... Has extreme surface activity in dilute solutions at high temperatures

... Particularly advantageous as a penetrator in Sulphuric Acid dyebath

3 NEW PRODUCTS
for the Textile Industry

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

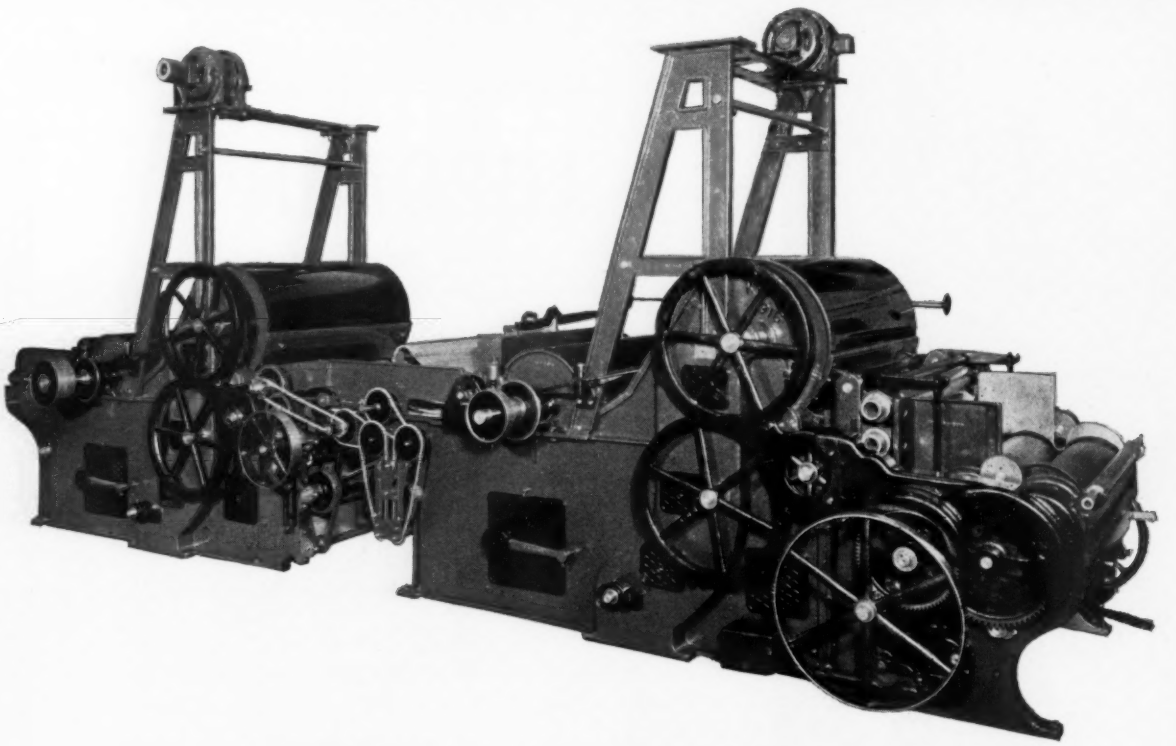
WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Tenn.
Midwestern Distributor: Bradley F. Marthens, Milwaukee, Wisc.

LUPOMIN ... (in powder form) softener and finisher for all textile fibres especially acetates and rayon crepe.

LUPOSEC ... waterproofing agent, soluble in cold or warm water ... great stability.

ORANAP ... readily soluble and penetrative detergent and degumming agent.

FREE! Write today for samples.



A NEW PICKER
BUILT INTO OLD FRAMES

The machine illustrated is an *Aldrich Synchronized Single Process Picker,* entirely new throughout except for the iron framework. This picker is designed to operate without the conventional hopper feeder and is fed directly from a *Gyrator Cleaning, Blending* and *Distributing Machine* equipped with automatic feed boxes.

The combination of the *Gyrator* with the *Aldrich Synchronizers* produces the cleanest and most uniform laps turned out by any picking system.

By utilizing your old frames, the cost of new pickers is cut in half.

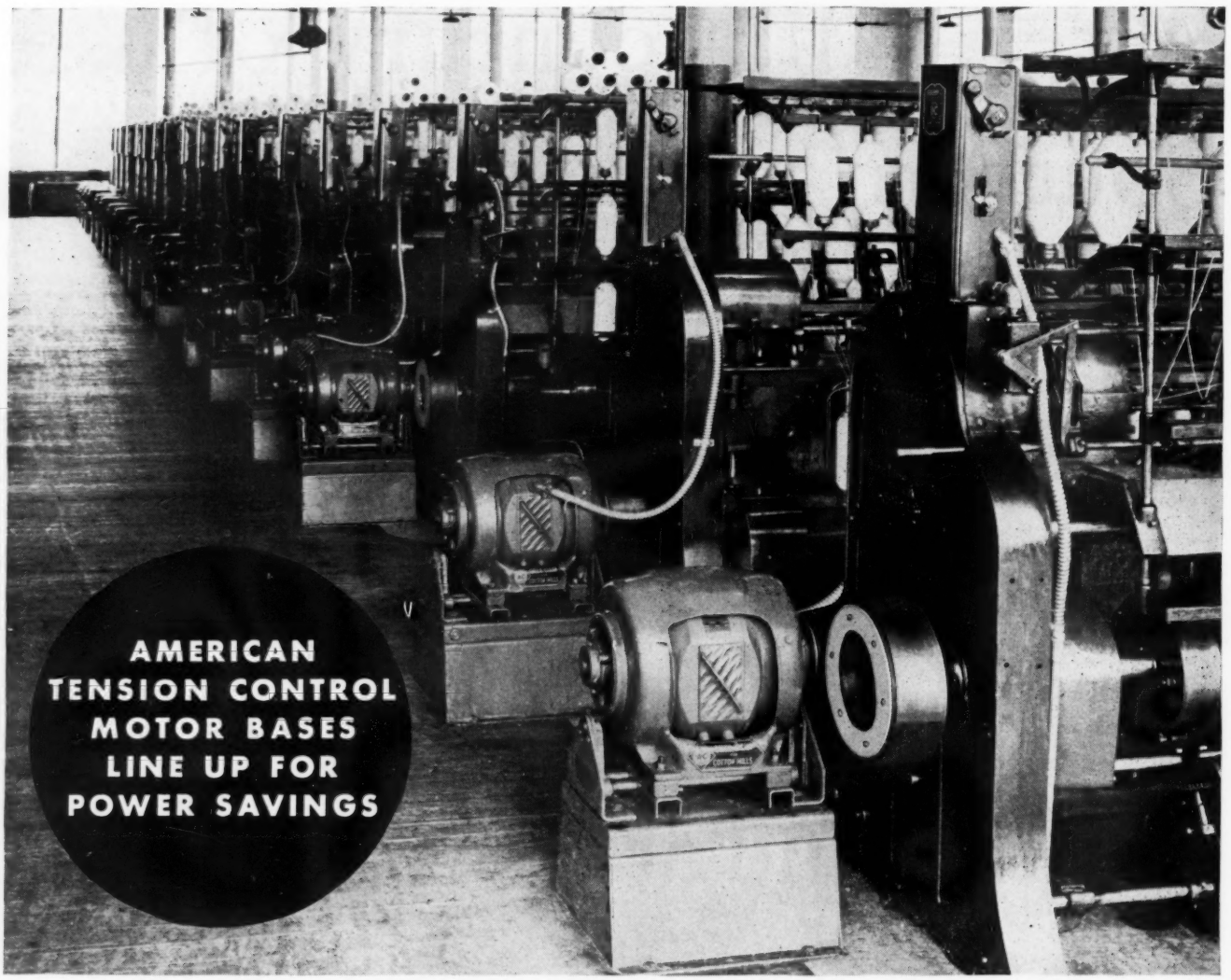
AldricH MachinE

Greenwood, **WorkS** South Carolina

After half a century of use, Southern textile mills still find STANDARD OIL LUBRICANTS unbeatable for *dependability* and *economy*...Your machinery, too, will work smoother, more efficiently—and at low power cost—with these lubricants *especially designed* to reduce friction in textile machinery...Let our engineers show you.

STANDARD OIL COMPANY

INCORPORATED IN KENTUCKY



Some of the biggest cotton mills in the South are among the enthusiastic boosters of American Tension Control Motor Bases... and their enthusiasm is based on the practical economies they have observed as large users. The illustration above shows a few of the 150 Tension Control Motor Bases used by one of the progressive mills on their spinning frame drives.

In your own mill, you will find that "American" Bases will quickly repay your original investment through savings in power consumption and reduced maintenance requirements. If you want proof, The American Pulley Company stands ready to offer it in its most convincing form. Without obligation, we will install the proper Tension Control Motor Base on any drive you select . . . and you may be the judge of its saving potentials.

Why not let us make one of these installations? It will pave the way to economies that will surprise you.

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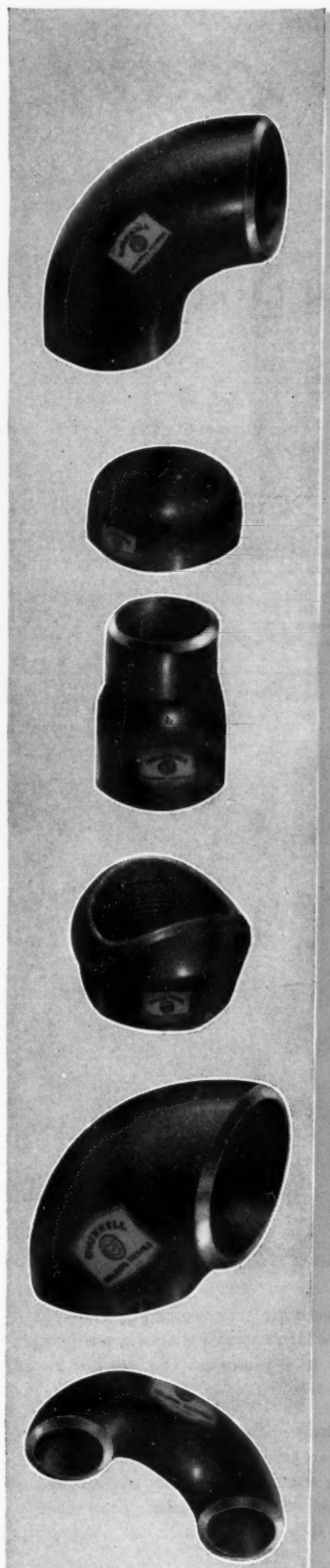
AMERICAN Tension Control MOTOR BASE



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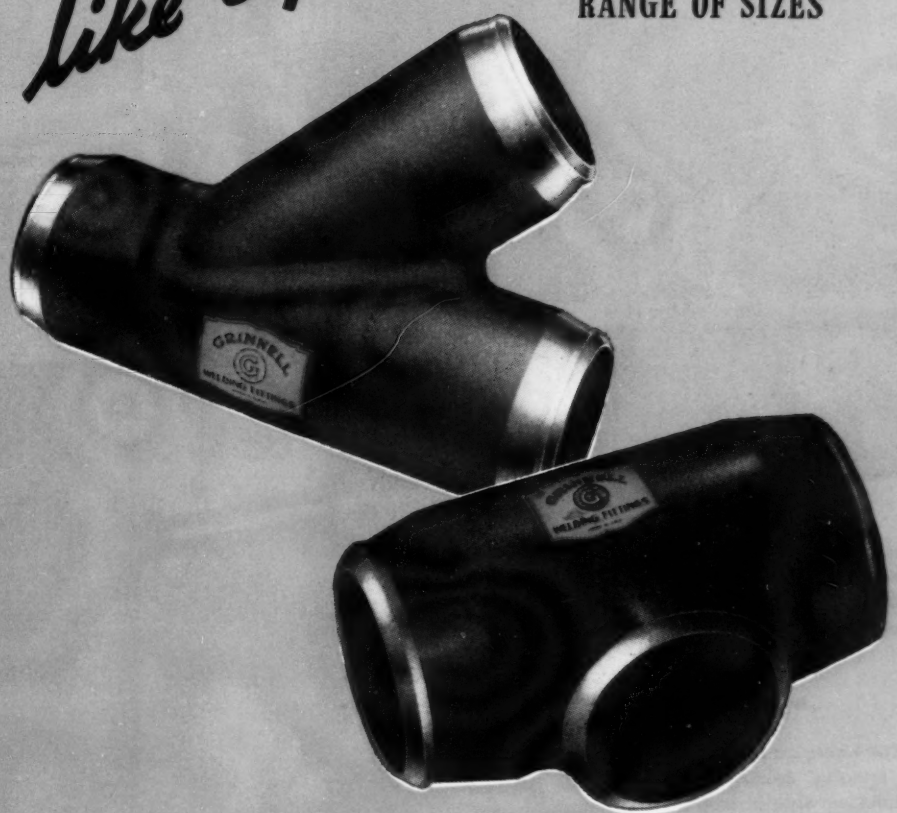

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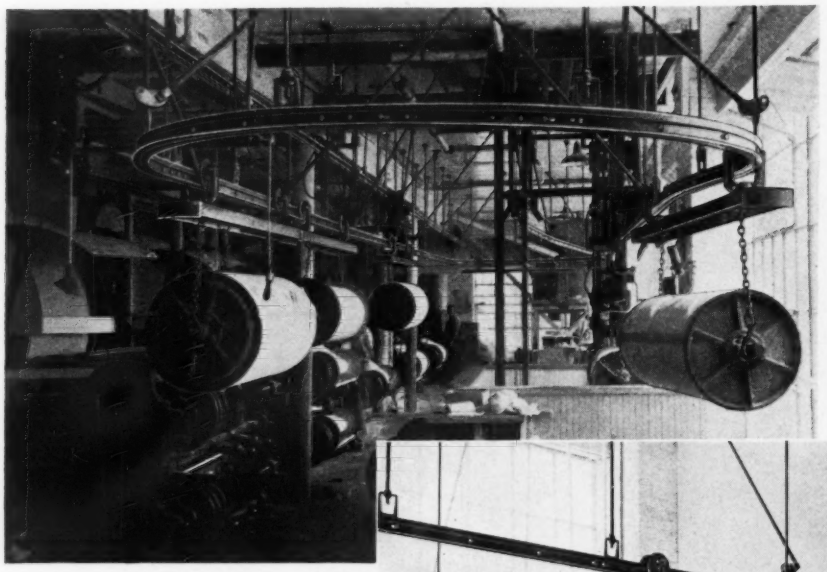

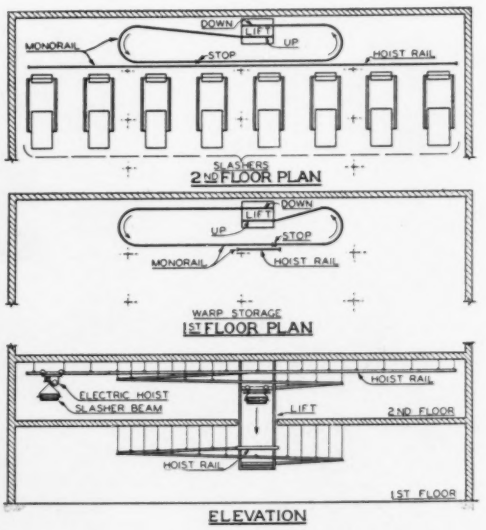

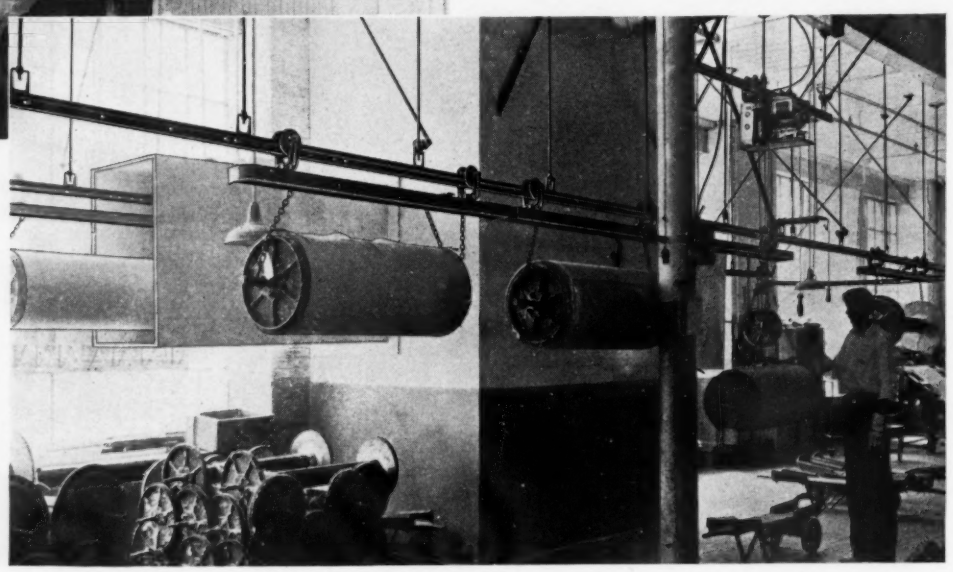

Loaded carriers roll by gravity around the monorail loop to the lift where they are transferred automatically to the floor below.

•

Warps emerging from lift in the tying-in room. Empty carriers roll around loop for automatic return to the slasher room on the floor above.

•

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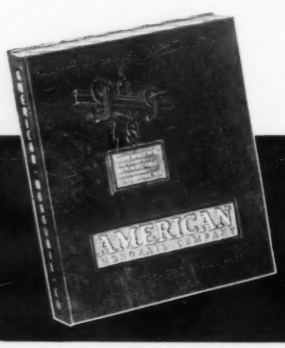

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SERVING THE
Textile Industries

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SHORTS AND REMNANTS

Research

"Research is not magic. One might say it involves finding the answers to three questions:

1. What is the quality of my present product and progress?
2. Why do I get the results that I do from each step in process? For example, why use 3.2 twist multiple instead of 3.5, or why use 1 1/16" cotton instead of 1 1/32"?
3. How can my process or raw materials be changed to produce a better and cheaper product?

"COTTON is one of the leading journals of the textile industry and can help to lead the industry into these new fields by:

1. Urging modernization of textile school courses, to give the student more of the 'Why?' of textile processes along with the study of 'How Does It Work?'
2. Promote the more extensive uses of control testing laboratories. Your recent article on this subject by Mr. Butler was an excellent start along this line.
3. Teach the bigger mills, at least, that a control laboratory is only the first step toward textile research. The biggest step is in using the laboratory not to control today's production, but to make possible next year's production of items that are not even thought of now."

W. F. BUSSE

Akron, Ohio.

◆

Finishing Articles

". . . . thank you for enclosing the two clippings of the sixth article by Edward Pierce on 'Modern Methods of Dyeing' appearing in your May issue."

WILLIAM F. ODOM

Sayles Biltmore Bleacheries, Inc.
Biltmore, North Carolina.

"Please send me clippings of the previous articles 'Modern Methods of Dyeing' by Edward Pierce."

RAYMOND C. HAMPTON

Cold Spring Bleachery,
Yardley, Pa.

"We would appreciate very much another copy of the article entitled 'Finishers Viewpoint on Defects in Grey Goods' appearing in the current issue."

C. E. MORRIS

American Finishing Co.,
Memphis, Tennessee.

◆

South American Wants Hosiery Data

"At the present time, I am visiting New York, ... kindly inform me what kind of books or magazines you have regarding the manufacture of full-fashioned stockings, your prices, and if same can be delivered in New York.

"We are subscribers of COTTON."

E. SORZANA

Sorzana & Domenech,
Nazca 1171,
Buenos Aires, Argentina.

SIGN POSTS

Many textile mills, both North and South, have advantageous locations for display signs which will catch the attention of the general public and advertise the mill and its products day in and day out. For the next several months, we have some prominent textile signs which may prove of interest to other mills. As a sort of preliminary, we think that the above sign, one of the sights of Greenville, S. C., the "Textile Center of the United States" will prove of interest.

Greenville's textile facilities are widely known and of interest. Within a radius of 100 miles of this city, there are 467 cotton mills, with 3,176,638 spindles, 162,618 looms, and 9,361 knitting machines.

With respect to the cotton textile industry in Greenville county, the following data are from official sources:

Number of Textile establishments	32
Capital Invested	$38,117,879
Value products manufactured annually	$46,126,023
Number of operatives employed	16,545
Annual wages of operatives	$13,611,569
Number of spindles	738,784
Number of looms	21,857

Fabrics woven in Greenville Mills range from the heaviest duck to the finest fancy silks, rayon and cotton dress goods, voile, shirtings, gingham, bed spreads, handkerchief cloths, etc.

Numerous industries complementary to the spinning and weaving of cotton are to be found in Greenville. Two of the largest bleaching, printing and finishing plants in the South are located here, as well as one of the largest yarn dyeing plants. Greenville also has a large worsted mill.

◆

Textile Printing

"If you have available any copies of the article by C. Norris Rabold entitled 'A description and Study of Textile Printing', appearing in COTTON Magazine during 1938, will you please send the writer a copy."

D. CLOS

Pacific Mills,
New York, N. Y.

(There were five of these articles appearing in March, April, June, August, and November issues.)

Orchids

Orchids to Scott & Williams, Inc., knitting machine manufacturers and to their advertising agency, Hazard Advertising Corp., for the heading on their June advertisement in COTTON—"Knit-Knacks." If you missed this look it up.

◆

Like ACMA Pres. Sketch

An annual feature of COTTON regularly eliciting favorable comment is the sketch of the new president of the American Cotton Manufacturers Association.

Some typical comments:

"I think that the sketch of Kemp Lewis on page 55 of COTTON is good, in fact I think it is excellent. I have a high regard for Kemp. I like him and I admire him. He is an able man and going further than that, he is of the type that I call human".

R. E. HENRY

Dunean Mills,
Greenville, S. C.

"I had already read in your magazine what you had to say about the young fellow. Kemp Lewis should be well equipped to carry on the work in an able manner. I don't know though what is going to happen to us if Washington continues their present policies."

T. M. MARCHANT

Victor Monaghan Co.,
Greenville, S. C.

"I was very much interested in the biographical sketch of Mr. Kemp Lewis, and it is very excellently written. As you know, this has been the custom of your good paper for many years. I see in the drawer of my desk a reprint of the one written for me sometime back in 1925. . . . I also note the candid shot of the writer by our friend Fuller."

A. W. McLELLAN

The Alden Mills,
New Orleans, La.

◆

COTTON As Text Book

". . . . a group of our young men chosen from the rank who meet each Wednesday night to discuss textile and relating subjects. They use as a textbook COTTON Magazine."

H. H. HUGHES

Swift Mfg. Company,
Columbus, Georgia.

◆

Look Forward to COTTON

". . . . it is a pleasure to contribute any news to your magazine at any time that I can be of help. We all feel that COTTON is a very worthwhile publication and always look forward to the new issue."

ARTHUR L. BURNETT

Ware Shoals Mfg. Co.,
Ware Shoals, S. C.

◆

Photos by Callaway

"'Photos by Callaway' should become a regular feature of your magazine . . . . they are remarkably good."

W. RAY BELL

The Assn. of Cotton Textile Merchants of New York.

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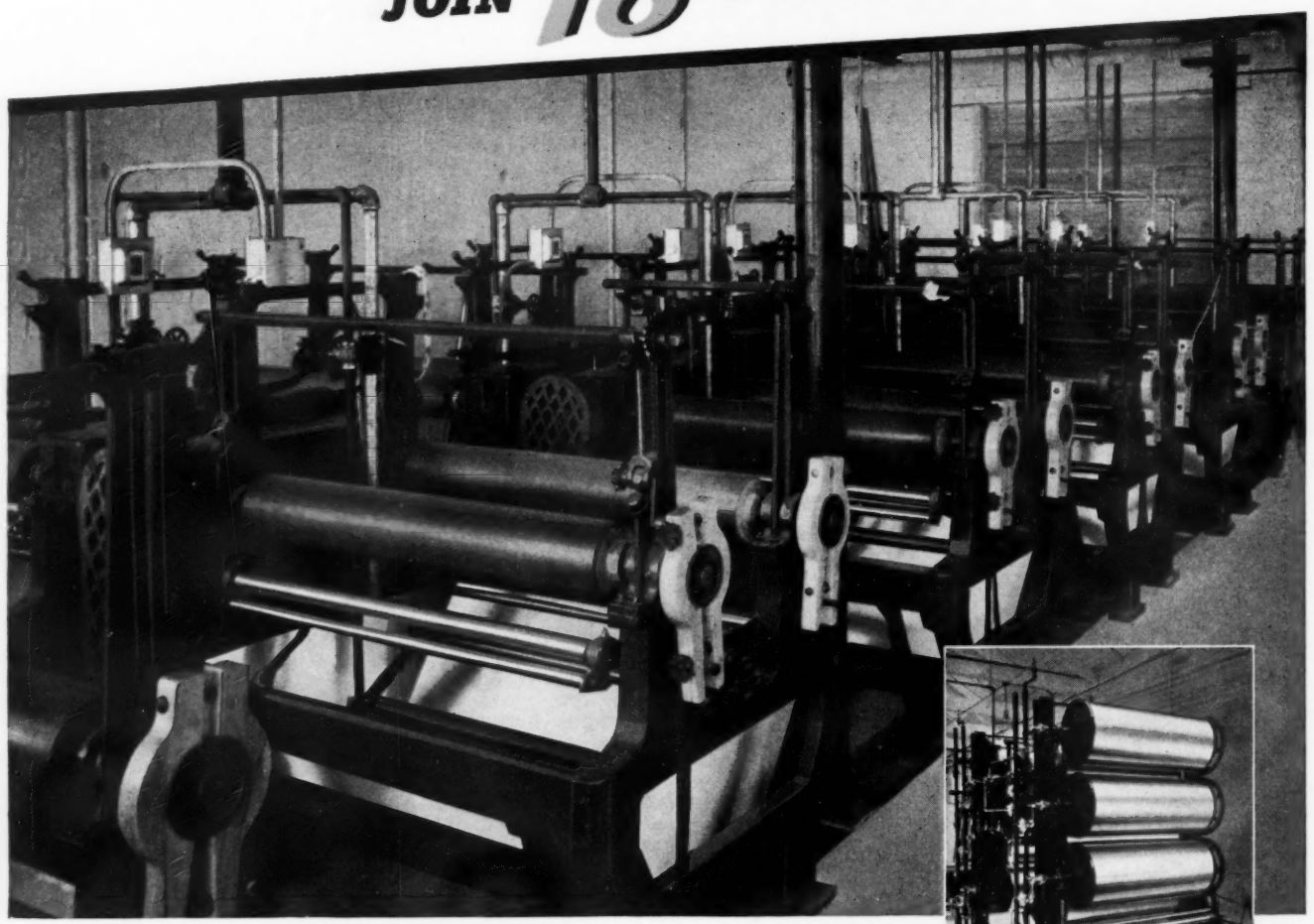

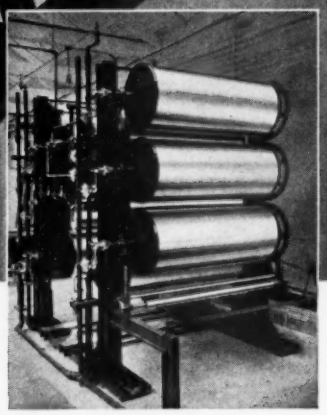

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. . . they now save with ENDURO *all through* this modern dye shop!

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COTTON
SERVING THE
Textile Industries

July, 1939 Vol. 103 No. 7

A Viewpoint on the Economic Factors of Prevailing Labor Organization

A CONSTANT reader of "Cotton," a man vitally concerned with textile manufacturing, has given here his views on one of the most vital topics of the hour in this industry and others. He deals in fundamental issues, seriously trying to present the situation with its ramifications as he sees it . .

FROM the nature of its conception and organization, it seems difficult for the typical American labor union to avoid degenerating into a racket, since its principal aim is the creation of a monopoly and the use of the monopoly to obtain forcibly benefits for its members at the expense of the general public. At the beginning of the labor union movement, the avowed objective of the union was to obtain forcibly benefits for its members at the expense of employers who were believed to be making more profit than was reasonable, and who theoretically were merely sharing some of their ill-gotten gains with their help rather than forcing the general public to pay the freight. In practice, however, there are so few businesses that make exorbitant profits that the cost of the labor union is passed right on to the public, and it is the public that suffers through increased prices and general inconvenience due to strikes and other labor squabbles that are necessary to maintain the monopolistic status.

Look at the Coal Strike

If anyone doubts this, we would refer him to the recent coal strike. Half a million miners were kept out of work for about six weeks for the sole purpose of tightening the stranglehold of the C.I.O. on the coal industry. There was no question of wages or hours involved. The only question was maintenance of the C.I.O. monopoly; not only in the customary form of freezing out non-union miners, but in the more refined field of freezing out another labor organization bidding for the dues of the miners. According to Mr. Lewis, coal mining is the exclusive privilege of the C.I.O., and he would retain that privilege if he had to starve his miners all summer.

The true spirit of the C.I.O. was particularly obvious in this coal strike. The union demanded a contract which eliminated any penalties for breaking the contract.

There is nothing inherently wrong about a labor union any more than there is anything inherently wrong about a corporation. If a group of people wish to pool their resources in the formation of a legitimate business enterprise and create a corporate body for the carrying out of this business, it is a thoroughly praiseworthy and logical proposition. If this corporation conspires with other corporations engaged in similar business artificially to create benefits for the stockholders which could not be obtained in fair, open competition, the American people have declared that this is an action prejudicial to the public interest and have forbidden it by law.

Just What Is Conspiracy?

If the employees of this corporation wish to organize an association for the better handling of their relations with the management of the corporation, this would seem to be a perfectly legitimate action, but if this association conspires with similar associations in other corporations engaged in the same business to obtain benefits for the membership of this association that could not be obtained without such conspiracy, then it is difficult to see the distinction between a conspiracy in restraint of trade on the part of a corporation and a conspiracy in restraint of trade on the part of a labor organization. The net effect is exactly the same insofar as the general public is concerned.

The argument could be advanced that in one case a few predatory economic royalists were further enriching themselves at the expense of the public, while in the other case the honest working man was merely trying to get a fair wage for his labor. However, in many instances our large corporations have more stockholders than they do employees, and many of these stockholders are very small capitalists who have salted their meager savings away in a share or two of stock. Perhaps they would relish more dividends just as much as the em-

ployees of the corporation would relish a wage increase. Neither argument, however, has anything to do with the true facts of the case, which are briefly that no organization, whether it be a corporation or labor union, should have any right to the privilege of forcibly gouging the rest of the public for its own benefit.

Imagine the hue and cry that would be raised if all of the mine operators banded together to form one big coal-mining syndicate that would control the entire output of the United States mines, and then flatly refused to sell any coal until the United States Government had recognized their right to organize such a monopoly, and to withhold coal from the public as long as they considered it necessary to force recognition of their monopoly. Congress would burst a blood vessel, and millions of people would say that lynching was too good for the crime.

This is substantially what the C.I.O. has done and got away with, and the National Administration has evidently given its blessing to the arrangement. This blessing has been bestowed on a form of monopoly capable of much greater abuses than were ever chargeable to the "trusts" of an earlier day. No matter what abuses could be laid at the doors of corporations, they were still legally financially responsible bodies, and if they injured somebody he at least had redress through court action, and if a judgment for damages could be obtained from a sympathetic jury the judgment was enforcible and damages could be collected. A sense of financial responsibility and liability at least exercised some restraint on the rapacity of a corporation.

Distinction without a Difference

There has been no such restraint on the rapacity of a labor czar. The typical American labor union, whether of A. F. of L. type or the C.I.O. brand, demands the right of maintaining a monopoly. The A. F. of L. pattern is the interlocking directorate scheme, which was denounced as a vehicle of corporation monopoly 30 years ago. Under the A. F. of L. set-up, it is assumed that all members of a certain craft ought to be in the union, and that it is perfectly legitimate for all of the union locals embracing this craft to conspire with each other to use whatever methods they deem necessary to carry out any program upon which they may decide. This seems to be an interlocking directorate situation at its worst, because the directors who do the plotting have the power of destruction without the restraint of financial responsibility.

When the boards of directors of some old-fashioned trusts got together for a bit of skullduggery they realized that if they got caught damaging a competitor, and he could prove it on them, they could be made to pay handsomely for their chicanery. When the directors of a labor union group of affiliated locals get together to plot some skullduggery they realize that no matter how much damage they plan, little, or nothing, can be done about it, and the damaged party has practically no recourse at law, since the damage will be wrought by an unincorporated and generally legally irresponsible group.

The Apex Case

It is true that a temporary note of cheer has been injected into this situation by the decision of the jury in the Apex Hosiery case, but it still remains to be seen whether this really means anything, or whether it is merely an isolated case where the acts of the union were so utterly wrong and wholly beyond the bounds of reason that a court could hardly overlook them. Whether this case will set a precedent and establish the right of injured employers to seek damages incurred by strike lawlessness very definitely remains to be seen. Furthermore, the Apex Hosiery Company may have won purely a moral victory if this verdict is upheld after its devious passage through the various courts, since it was agreed between counsel before the case went to the jury that the property and assets of the members of the union were exempted from attachment. If this particular union treasury happens to be empty, it is a little difficult to see where the Apex Hosiery Company will get their money to satisfy the judgment. Apparently there is nothing to prevent this local from dissolving its present organization and the membership reorganizing under a different name; leaving the Apex Hosiery Company with a judgment against Mother Hubbard's cupboard.

Under the C.I.O. setup, the interlocking directorate scheme is scrapped in favor of a direct and unquestioned monopoly; a "supertrust" of labor. Recently one of the national news-gathering agencies reported that the C.I.O. had spent over two million dollars in an effort to unionize the textile mills in the South. Who furnished the two million was not stated; certainly the money did not come from the dues of the C.I.O. membership in the textile industry, since it is doubtful if the C.I.O. has enough membership in the southern cotton mills to have contributed any such fund if they had chipped in their entire wages. Nothing daunted, they appear to be still cherishing the idea of unionizing the southern mills and reaping a golden harvest of dues that will repay the two million already spent and yield a nice profit on the investment.

Whence the $2,000,000?

Certainly this C.I.O. must be a pretty profitable business if it can afford to sink two million in a membership campaign that seems to have encountered so much sales resistance. Five hundred thousand miners paying monthly forced tribute, whether they like it or not, has evidently whetted Mr. Lewis' appetite for an extension of his jurisdiction over another half million textile employees whose union dues would be automatically collected from their wages every week through the benevolent check-off system now in effect in the mines.

The Economics of It

If monopolies are wrong for corporations they are wrong for labor organizations. As far as the public is concerned, there is no justification for an arbitrarily

(Continued on page 94)

Motion Pictures Emphasize Safety in the Mill

By Fred Merish

THE HOLLYWOOD INFLUENCE, world-wide in the amusement field, is now active in behalf of safety. Many manufacturers are using movies and talkies to reduce accident hazard, inside and outside the plant. One safety film recently reviewed by this writer left a lasting impression on the workmen with whom we sat in audience. The film portrayed the daily lives of a manager, foreman, and workmen in an industrial plant. It seemed that every possible accident was covered, the effects of these accidents on the morale of the plant, the necessity for being on the watch all the time, and the need for modern safety equipment, were strikingly and dramatically depicted.

Most accidents to workers are the result of carelessness, not usually gross negligence either, but little slips of the mind. A worker forgets to put on safety goggles—he loses an eye. A workman mounts a stepladder without making sure it is well braced—he falls—breaks an arm. A worker disregards a sign of "Danger — Keep Out"—arm crushed. This safety film, with telling effect, emphasized the wisdom of doing all things, large and small, with the greatest care.

Strickland Film Corp., Atlanta.

How to handle heavy drums, pile barrels, lift heavy objects, the danger of too much hurry, how to use tools and machines properly, the advantage of cleanliness in the plant, the danger of slipping on oil or water left on floors, and the necessity for cleaning up such hazards immediately are covered in safety films. Repair men are shown how to test rubber gloves before attempting high-tension work, how to lock the switch or power control lever in "Off" position before starting repairs on machinery, the advisability of getting first aid, no matter how slight the injury may seem, and the safest kind of clothing to wear. Accident hazards of every description are thrown on the screen at safety meetings in industrial plants throughout the country, where they are viewed by thousands of workers, instilling a safety consciousness unsurpassed by any other medium. Visual presentation of these subjects in a film is particularly effective.

Wise industrial management affords workers an opportunity to foregather at periodical safety meetings to discuss safety measures and hear lectures on safety. At such meetings the safety film can be put to excellent use. It gets over the story of safety much more effectively than mere words of warning as any hazard or preventive measure can be vividly portrayed on the screen, from the danger of practical joking to fire prevention.

Highway accidents affect plant production when they lay low employees, particularly key men on production, foremen, or executives; therefore, many manufacturers are showing their workers safety films covering car and truck operation on the highway. These films present the common faults of traffic violators and the serious accidents that may result. Salesmen-drivers, truck drivers, and the ordinary industrial worker benefits by witnessing a film on highway safety. Lay-offs because of highway accidents to workers are costly to industrial management. In these days when almost all industrial workers drive cars, the loss to production through highway hazards runs into substantial sums yearly. The travelogue, produced by many motor car manufacturers, and obtainable on rental or loan, provides a subtle means of presenting the safety message without preaching. The drivers in such films obey all the rules of the road and never have accidents or dangerous moments, silent eloquence to the wisdom of careful driving. Then too, the travelogue, by taking the audience to interesting places, maintains rapt attention throughout the film.

Scientists tell us that 87 per cent of our impressions come through the eye. Business men verify their faith in optical effectiveness by spending millions on eye appeal in display and advertising matter. The fact that eye appeal is their most effective buying appeal indicates the superiority of the orb as an impression-producer. The motion picture focuses attention more sharply than the printed word or the spoken word used alone, it sustains interest at a high pitch because action is dramatically por-

trayed and often the plots involve love, comedy, tragedy, capitalizing on the human emotions for safety's sake, embossing its lesson upon the mind for a much longer period of time, the message "stays put" longer, creates a more impelling and permanent urge to play safe. Add sound and motion to the safety film and the impression is even more effective.

Safety films are produced by insurance companies, associations and industrialists, from one to two reels; some silent, some sound, some slides and discs. Slides and discs are least expensive to produce and in some cases preferred because the slide can be kept on the screen as long as desired while discussion is prolonged. In some cases, there is a nominal rental cost, in other cases, the films are loaned free. Films furthering health and hygiene are also obtainable. Studios in Hollywood and other cities will produce safety films for any company desirous of owning their own. The industrialist with an accident hazard on his hands must cope with this costly problem, and will do well to consider giving his safety messages a screen test, whether he uses his own films or those rented or borrowed from other sources.

Timing Loom Motions

IN REPLY TO AN INQUIRY submitted to COTTON: "What are the various timings of the different motions on the Model E Draper bobbin-changing loom?", Ivar Moberg furnished the following information:

There are only four timings on a Model E Draper loom—the picking motion, warp stop motion, filling stop motion, and harness motion.

To time the picking motion, proceed as follows: Turn the loom over until the pick ball rests on the top of the pick cam point, and adjust the strap connections so there will be approximately 8 to 8½ inches between the inside of the picker stick slot in the lay end and the picker stick, just below the picker. This determines the sweep of the picker stick. Now turn the loom over until the cranks of the crank shaft have just passed the top center on their backward movement. Loosen the two bolts holding the pick cam to the hub, and by means of the adjusting screw, time the pick cam so that the picker stick will just start to move for the pick. If the pick cam has already been moved to the limit on the hub it will be necessary to loosen the setscrews in the hub and move this on the shaft. If this latter procedure has to be resorted to, adjust the pick cam on the hub so that the bolts will be one-fourth forward in the slots of the pick cam, before the hub is turned on the shaft. This will give one-fourth of the adjustment for retarding and three-fourths for advancing the pick if need be. If the timing of the pick is properly executed there is rarely any need for retarding the pick but it must, in time, be advanced, to allow for wear of the picking motion.

Timing of the warp stop motion is confined to the cam of the motion. If the warp stop motion is of the old type, with knock-off from the cam, it is a complete unit by itself and two different timings are possible. One of these timings is such that the loom will stop with the shuttle fully in the box and in a position that makes it convenient for the weaver to draw in the broken end without having to turn the loom into this position by hand. Since this timing depends upon the effectiveness of the brake, it will have to be found by trials. The other timing may have to be used on certain class of goods, on which it is necessary to have the serrated bars move onto the drop wires, when these are supported by the greatest tension of the warp, viz., at open shed. If the bars move onto the drop wires at closed shed, the drop wires due to the slackness of the warp may drop so low that they will stop the loom without any end broken. In this case the warp stop motion cam is timed in relation to the timing of the harness cams. If the warp stop motion is of the type where the movement of the lay knocks off the loom it must be timed in relation to this movement. To obtain this timing, pull the shipper handle into "on" position, having previously disconnected the driving motion, turn the loom over by hand in the direction it runs, until the bunter on the lay is just about to strike the knock-off finger in its path. At this point turn the stop motion cam on the bottom shaft so that it will present either its lowest or highest point to the cam follower. Tighten up the setscrews in this position.

To time the filling stop motion, loosen the cam on the bottom shaft and turn it so that its cam follower rests on the lowest portion of the cam. Now, raise or lower, as the case may be, the cam follower end until the wire loop of the filling fork is 1/8 to 3/16-inch in advance of the brass hook of the filling stop motion. Tighten up the cam follower end in this position and do not alter this setting again. With the shuttle in the left hand box, move the lay to the extreme front center and turn the filling stop motion cam on the bottom shaft until the brass hook has moved forward to a point at which it is just about to become engaged with the wire loop of the filling fork. Tighten up the setscrews in the cam at this point and make no further changes of this timing.

The timing of the harness motion is governed by the kind of fabric being woven. The timing of this motion may be divided into early, medium and late timings. With early timing, the harnesses are even at bottom center of the crank shaft; with medium timing, the harnesses even at half way between bottom and front centers and with late timing, the harnesses are even at front center of the crank shaft. Since the inquirer did not state what kind of fabric he is weaving, I can not state which of these timings would be most suitable in his case.

Ten Years of Cotton Textiles

By W. Ray Bell

President, The Association of Cotton Textile Merchants

THE statistical record of the cotton-textile industry for the past ten years, shown in the accompanying chart, presents an interesting picture. It is the eighth such annual survey compiled by The Association of Cotton Textile Merchants of New York, and W. Ray Bell, the president, presents some worth-while interpretations of the figures, in part, as follows:

The peak of nearly 9,446,000 square yards of woven cotton goods established for 1937 again emphasizes the extraordinary activity of the industry in that year. 1938 was predestined to be a period of inventory distribution and adjustment of production to reduced demand resulting from general business depression, with a decline, compared with 1937, of over 20 per cent, the brunt of this adjustment being in the first six months. When demand increased in late June, it was largely translated into production rather than improvement in price structure; operations during the second half of the year were 22.4 per cent greater than those of the first six months, employment and cotton consumption increased, but the weight of 1937 stock accumulations kept prices depressed.

Except in a few specialty divisions, widespread losses reported by individual units for 1938 testify to the sub-cost prices of goods. The primary market was dominated by hand-to-mouth buying throughout 1938, with a further depletion of inventories in the customary trade reservoirs. The cotton surplus problem and the several European crises joined this buyer reluctance.

Especially in the large divisions of staple goods, which normally account for over 50 per cent of total woven goods production, market prices have shrunk to the lowest levels since 1933. However, actual cotton costs to the mills have advanced materially in recent months, due to shortage of supply in commercial channels. Wage minimums, too, must soon rise. With this additional pressure to the squeeze between mounting costs and destructive prices, either the markets must advance materially or mill operations slow down.

Exports Up—Imports Down. One important consequence of the low prices was the largest yardage of piece goods exports since 1932. The gain was 83,000,000 square yards over 1937. Imports declined by 89,000,000 square yards.

Plant Demolition Continues. While the loss of installed spindleage was less than in 1937, there has been an added decline of approximately 300,000 spindles in place from the first of 1939 up to the end of April. The latest reported total of 25,680,020 spindles in place is the minimum reported in 33 years. It compares with 25,811,681 reported for 1906, on the eve of physical expansion, and to nearly 38,000,000 in 1925.

Installation of new machinery in 1938—178,280 spindles—was the smallest in 15 years, save for the mid-depression year of 1932. In 1937, 772,724 new spindles had been reported.

Active spindles, in 1938, were reduced to a new low of slightly over 22,000,000 spindles. Idle spindleage in 1938 ranged from 5,328,000 in June to 3,542,000 in December, but there were less than 2,000,000 which failed to run at some time during the year ending July 31, 1938. Hours of operation per average active spindle declined for the first year since 1934, being more than 13 per cent under 1937.

Consumption of raw cotton in 1938 declined to approximately 2,905,000 pounds from 3,657,000 in 1937, 3,470,000 in 1936, and 2,755,000 in 1935.

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
EQUIPMENT											
Spindles in place at beginning of year	35,267,086	34,541,486	33,608,494	32,326,526	31,442,174	30,938,340	30,889,484	29,253,444	27,700,194	26,704,476	25,986,620
Increase or decrease from preceding year	−1,198,890	−725,600	−932,992	−1,281,968	−884,352	−503,834	−48,856	−1,636,040	−1,553,250	−995,718	−717,856
New installation, additions and replacements	320,784	251,936	205,068	143,908	348,568	529,840	214,874	469,316	772,724	178,280	
OPERATION											
Spindles active at any time during year ending July 31st	32,417,036	31,245,078	28,979,646	27,271,938	26,894,860	27,742,462	26,700,946	24,664,428	25,419,110	24,774,004	
Spindles idle during same period	2,850,050	3,296,408	4,628,848	5,054,588	4,547,314	3,195,878	4,188,538	4,589,016	2,281,084	1,930,472	
Average number of active spindles based on twelve monthly reports	30,408,548	27,269,470	25,674,107	23,250,757	24,873,270	25,119,435	23,421,150	23,373,147	24,079,936	22,042,442	
Intermittent spindles (being the difference between average active spindles and those active at some time during year)	2,008,488	3,975,608	3,305,539	4,021,181	2,021,590	2,623,027	3,279,796	1,291,281	1,339,174	2,731,562	
Percentage relation of average active spindles to spindles in place	86.22%	78.95%	76.39%	71.92%	79.11%	81.19%	75.82%	79.9%	86.93%	82.54%	
Spindle hours run	99,899,724,476	76,702,655,168	77,793,298,853	70,218,347,911	86,580,232,828	75,711,412,882	76,017,361,934	91,773,252,676	95,591,131,816	75,925,187,178	
Hours run per average active spindle	3,285	2,813	3,030	3,020	3,481	3,014	3,246	3,926	3,970	3,444	
MARKET											
Production in square yards	8,398,616,000	6,448,392,000	6,955,391,000	6,278,222,000	7,866,040,000	6,878,579,000	7,135,276,000	8,613,837,000	9,445,736,000	7,502,168,000	
Exports in square yards	564,444,000	416,285,000	366,959,000	375,446,000	302,042,000	226,306,000	186,565,000	200,501,000	236,251,000	319,634,000	
Imports in square yards	61,185,000	35,517,000	34,732,000	29,436,000	41,348,000	41,533,000	63,674,000	114,195,000	147,320,000	58,282,000	
Available for domestic consumption	7,895,357,000	6,067,624,000	6,623,164,000	5,932,212,000	7,605,346,000	6,693,806,000	7,012,385,000	8,527,531,000	9,356,805,000	7,240,816,000	
Population at July 1st	121,526,000	123,091,000	124,113,000	124,974,000	125,770,000	126,626,000	127,521,000	128,429,000	129,257,000	130,215,000	
Available for per capita consumption in square yards	64.97	49.29	53.36	47.47	60.47	52.86	54.99	66.40	72.39	55.61	

Interim Report on Wage Hearings

JUNE brought public hearings, before Administrator Elmer F. Andrews, to provide him with information on whether to accept recommendations to apply to two major branches of textile manufacturing higher minimum wages than the statutory provisions of the Fair Labor Standards Act of 1938. Under that Act all industry engaged in interstate commerce has, since October 24 last, been operating under a minimum wage of 25 cents per hour; this to be automatically increased to 30 cents under the law October 23.

Industry Committee No. 1, appointed by Mr. Andrews under the law, had in March recommended that he issue immediately a wage order raising the minimum wage to 32½ cents for the manufacturing branches covered by it—the cotton-textile, rayon and silk. The Hosiery Industry Committee had recommended an immediate wage order of 32½ cents for seamless hose and 40 cents for full-fashioned mills. The hearings on the hosiery committee's recommendations were held during the week of June 12, resistance coming largely from smaller operators in the low-end divisions of seamless manufacture who declared it impossible to operate under the proposed minimum. Majority opinion in favor of the hosiery minima requested that Mr. Andrews defer application of his wage order for hosiery mills to make it simultaneous with a wage order covering cotton-textiles, since this industry operates substantially in the same areas as the bulk of seamless hosiery manufacture, and simultaneous application would, it was pointed out, tend to minimize dislocations and disparities.

The hearings on the proposed increased minimum of 32½ cents per hour for the industries covered by Industry Committee No. 1 began in Washington on Monday, June 19, in the same room in the Commerce Building, incidentally, where hearings on Industry Code No. 1 under NRA were held five years previously, almost to the day. A totally different atmosphere prevailed, however; instead of the pugnacious General Johnson of NRA was the quiet, deliberate and considerate Mr. Andrews. Instead of a capacity attendance, there was a handful of spectators, mostly witnesses called by the proponents of the measure. Opposition was centered at the Washington hearings in cross-examination of the proponents' witnesses by Tyre Taylor, counsel retained by the American Cotton Manufacturers Association which, when the majority report of Industry Committee No. 1 was filed in March, immediately entered opposition to its acceptance by Mr. Andrews. The Washington hearings consumed the entire week of June 19, and the scene was transferred for the next two weeks (with a recess for the Independence Day holiday) to Atlanta, Ga.

At Washington, the entire week was devoted to testimony in favor of the proposed minimum of 32½ cents per hour. Five full days were devoted to building up a favorable case, based largely upon the majority report of the committee recommending 32½ cents. The industry committee was composed of 21 members, 7 representing each of three groups—employers, employees and the public. All labor members, 5 public members, and 3 eastern employer members had signed the majority report. The four southern employer members, and two public members had filed a minority report opposed to any change at this time in the statutory minimum of 25 cents until next October.

A full report of the proceedings here is impractical, but a few observations of a constant observer are pertinent. During the first week of the hearings, in Washington, all of the voluminous testimony was devoted to endorsement of the proposed higher minimum, and in this connection two clear observations are significant. Spencer W. Pitts, originally counsel for the entire comittee, had been assigned to the majority group to present its case. He was directly assisted by an associate, Julius Schlesinger, of the legal staff of the wage-hour division of the Department of Labor, and by two economists of the department who had compiled most of the statistics in Bulletin No. 663 of the department, used as the "bible" of the proponents of the measure. Moreover, actively assisting in the presentation of the evidence and in the "prosecution" of the case, were John Abt, general counsel of the Textile Workers Union of America, of CIO, and Solomon Barkin, economist of TWUA, and Boris Shishkin, attorney for the United Textile Workers of America, AFL affiliate; as well as Charles Wyzanski, counsel retained by the National Association of Cotton Manufacturers, representing northern mills.

Early in the hearings at Washington, evidence made it clear that the "prosecution" was chiefly concerned with the effects of the proposed minimum, first, upon cotton-textile mills, since it was stated that it would at present have practically no effect upon the other industry branches under Industry Committee No. 1, and, second and more significant, upon these mills in the southern section of the country.

Thus was presented an array of counsel and testimony so evidently designed toward the imposition of the measure upon one single branch of the industry located in one specific area. This observation was further strengthened by the obvious alignment of these participants in the presentation of the case. Substantially all of the testimony adduced at Washington comprised statistical data compiled by the Department of Labor so presented as to minimize the claims of southern manufacturers that the imposition of a minimum higher than that provided in the original act at this time would represent an insurmountable hardship upon many southern marginal mills and result in "substantial unemployment" and thus violate one of the act's provisions. In addition to this statistical data, the greater proportion of the testimony of the proponents was clearly based on attitude and opinion prejudiced against the southern branch of cotton-textile manufacturing. This took the form, in a great many instances, of pleas from civic organizations of New England cities, and similar testimony, patently designed to attempt to preserve industry in that section, and wholly irrelevant to the major consideration of whether the application of a 32½-cent minimum wage at this time would result in "substantial unemployment" in the industry.

Another section of the testimony in Washington came from representatives of organized labor, who likewise concentrated their attacks upon the southern branch of the industry.

Two southern mill executives testified in Washington in favor of the higher minimum, and two representatives of textile concerns operating plants both North and South. One of the southern mill men operates a plant owned by Chicago interests who take substantially its entire output. The other testified that he had spent several hundred thousand dollars in modernizing his plant, and stated, on cross-examination, that he felt a small, non-modernized, inefficient, marginal mill could compete with him with identical wage scales—leaving unanswered the natural question of why, if this were true, he had spent all of that money on his own plant.

Arnold Tolles, economist of the wage-hour division, presented the weight of testimony of a statistical nature intended to demonstrate that application of the wage order would not result in "substantial unemployment". When he was asked by W.

M. McLaurine of the American Cotton Manufacturers Association to define what he meant by "substantial unemployment" Mr. Pitts, Mr. Wyzanski and Mr. Abt objected in unison, so that there is not yet in the record what Dr. Tolles has in mind as to the amount of unemployment that the higher minimum would or would not create.

Request for Union Data Denied

Another high spot in the Washington hearings was the request from Attorney Tyre Taylor that textile labor union representatives disclose a break-down of their dues-paying membership, as between the North and South, the number of concerns with which they have contracts North and South, and the minimum wages prevailing in such contracts. The seven representatives of labor on Industry Committee No. 1 were chosen entirely from the ranks of organized labor, and it is the contention of the opponents of the proposed wage order that for this reason, the committee was not properly constituted according to law, since this procedure gave no representation for unorganized labor, representing by far the larger proportion of employees in the industry. Mr. Taylor requested the Administrator to issue a supoena for this information, this request being denied by Mr. Andrews during the Atlanta portion of the hearing the following week.

For the following week, that of June 26, the scene of the hearings shifted to Atlanta. It had been contemplated that the proponents of the wage order would present their case in Washington, leaving this week to the opponents, and Mr. Andrews transferred the hearings to Atlanta for the convenience of these witnesses. However, the first two days were devoted to a continuation of the "prosecution", with Mr. Pitts and the attorneys for the labor unions presenting additional witnesses, including a self-styled economist and a liberal college president, both of whose testimony, without factual data as to the actual effect of the higher minimum upon employment, seemed designed toward imposing additional burdens upon the "marginal southern mill" which, the opposition contends, will be most adversely affected by a higher wage structure at this time. Two mill employees testified as to their working and living conditions, under adroit examination by Solomon Barkin, their appearance at the hearings apparently being an effort on his part to demonstrate to the administrator—and to the public—the "terrible" working and living conditions of southern mill employees, a sample of the irrelevant and over-drawn evidence of some of the measure's proponents, since it was obviously ridiculous to attempt to present such extreme instances as being representative, and, besides, such evidence was wholly irrelevant to the point at issue.

The South Presents Its Case

Starting on Wednesday, June 28, and continuing until the recess of the hearing on July 1, opponents of the proposed minimum had their opportunity to testify. The first witness presented by Mr. Taylor was Kemp P. Lewis, president of the American Cotton Manufacturers Association, who explained the association's stand in opposition to a higher wage at this time as being largely because of the adverse effect it would have on employment in southern mills through the elimination of "marginal mills", and the weeding out of sub-standard employees in mills that continue to operate. He reported that 95 per cent of southern mills replying to a questionnaire on the subject had expressed themselves as opposed to the wage order—these replies representing something more than 11,000,000 spindles. He pointed out also that his associates strongly felt that in making its recommendation, the majority group of the committee had not adequately considered such important matters as the financial ability of many of the mills to absorb such a precipitate increase, the matter of existing freight differentials against the South, relative costs of living in various sections of the country, etc.—all matters which, he said, the committee was required by the act to consider carefully—as well as the fact that the majority had not studied sufficiently the economic ability of the industry as a whole at this time to apply the proposed minimum and, most important, the increases above the minimum rates which would be required by its adoption.

Following Mr. Lewis came Charles A. Cannon, a member of Industry Committee No. 1, who signed the minority report opposing the recommendation who, in the main, presented testimony to indicate that the recommendation was untenable because of failure of the committee to receive or to consider adequate information on many subjects bearing upon the wisdom of a higher minimum wage at this time. Robert West, another member of the committee who signed the minority report, emphasized particularly the effect that a higher minimum would have on total labor cost due to necessary increases above the minimum scale as a result of it. Other significant testimony dealt with the subject of inequalities of freight rates, the threats and effects of foreign competition in textiles and competition from substitute materials and the tendency of a higher wage structure further to dislocate the textile industry in relation to its competition, etc.

There was a parade of witnesses, largely mill managers, who testified as to the amount of unemployment that would result from the application of the higher wage minimum, ranging from several dozen in one mill to complete unemployment through shut-downs and liquidations in others. In his own testimony, Mr. Cannon had stated that estimates indicated that 2,000 of the 20,000 employees of his company alone would be released if the wage order is applied.

Resuming in Atlanta on July 5, after the holiday recess, Mr. Andrews was to hear testimony from a group of small southern textile mills for the remainder of the week, after which the proceedings were to be resumed for a final session in Washington beginning July 10.

Summary of Opposing Arguments

In brief, the objectives of the proponents of the measure are to demonstrate that the industry as a whole can absorb the increases of the proposed minimum without adverse effect; that the higher wages would result in increased purchasing power; that workers thrown out of employment through the increased minimum would find employment in other mills.

Generally, the position of the opponents is: that wage costs resulting from the proposed minimum at this time would be too high for inefficient marginal mills, many of which constitute the sole employment in isolated communities; that the burden of the increase would fall almost entirely upon the South; that if the 32½ cent minimum is adopted, the South should be given a lower minimum to compensate for discriminatory freight rates and for lower living costs for comparable standards of living; and that Industry Committee No. 1's majority, in recommending the proposed minimum, did not consider all pertinent facts, and that the suggested minimum is not justified by the facts and information which the committee had and did not have at its disposal for consideration.

When the hearings have been concluded, the next step in the procedure under the law will be for Administrator Andrews to consider the evidence presented, and decide (1) whether to issue a wage order making the 32½-cent minimum effective immediately or (2) to reject the majority report of the committee, and appoint another committee to consider whether a minimum rate above the 30-cent minimum mandatory on October 23 be applied. Many feel that the decision has already been made to apply the wage order, that the hearings were held solely in conformity to the law, and that court action to enjoin the application of the order, toward which much of the opposing testimony unquestionably was pointed, is the only hope of the opposition.

The origin of the act itself and the political alliances and implications of the present proposal, when weighed against factual evidence in the case, create for an Administrator charged with and intent upon a fair and impartial decision, a "tough spot" indeed. But it is so apparent that mutual selfish interests have once more aligned together with the result that social legislation has been abused and distorted from its original beneficient intent.

Spinning Room Practice

By Horace L. Pratt

Article 4

IN THIS, the fourth installment of a series on spinning room practices, the author gives a detailed study of the spinning ring and traveler, with comments on bad work caused by worn rings and travelers. The series began in the March issue and was continued in the April and May issues. Thus far general spinning practices, various types of long draft spinning, and the drawing rolls have been discussed. Watch for the next installment in an early issue. It will take up the spindle and its components.

THE RING, the little mechanism that gives to the ring spinning frame its distinguishing name, and its accompanying unit, the traveler, are called upon to perform most difficult duties under very adverse conditions. The efficiency of present day rings and travelers is a tribute to modern manufacturing methods, and especially to the engineering skill of our ring and traveler makers. The ring, acting as a sort of bearing, supports without lubrication (except under certain conditions not included in the scope of these articles) the traveler which is revolving around the ring at a varying speed, sometimes exceeding a mile a minute. While we do not pretend to understand all the reasons why the ring is able to stand this punishment for five, ten to fifteen years and longer, the fact remains that the ring will last for many years with practically no attention except an occasional cleaning.

There are several methods of making spinning rings. They are usually made of a special, low carbon steel, the methods of making, turning, hardening and finishing the rings varying with each manufacturer. One concern cuts from a seamless pipe the blanks from which the rings are fashioned. Another maker hammers out a piece of steel into somewhat the shape of a ring, cut these blanks from the bars of steel and turns the rings. One large maker of rings cuts bars of steel into the proper lengths, according to the diameter of the rings wanted, and these short pieces are bent and welded—all this being done by special machinery. The rings, made two from each blank, are turned on lathes with special tools to insure uniformity in flange widths and circles that are concentric. Throughout all the processes, the operations are performed lengthwise the bar of steel, and in the direction in which the traveler is to run later.

Ring Specifications

Not only must the rings be made to mathematical precision, but they must be hardened to withstand the high traveler speed. On the other hand if they are made too hard the rings will be brittle and will break easily. A special process, which we will not take the time to describe in detail, hardens the outside (case hardens), while the inside remains relatively soft. This enables the outside surface to withstand the wear of the traveler, yet the ring as a whole is not easily broken. This hardening and tempering process is scientifically controlled to secure uniform results in each lot of rings made.

Rings are made in various sizes, the size being determined by the *diameter* of the ring and the *flange*. The diameter means the inside diameter of the ring, while flange means the width of the flange in thirty-seconds of an inch, *less three*. Or the number of the flange, *plus three* is the width of the flange in thirty-seconds of an inch. For example, a No. 2 flange ring has a flange 5/32-inch in width. A ring with a flange 4/32-inch in width is said to be a No. 1 flange ring.

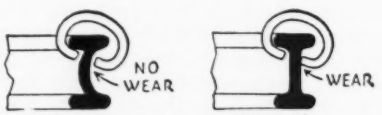


Fig. 1a Fig. 1b

Showing comparison of curve web ring and straight ring ,and position of traveler on each.

Courtesy Whitinsville Spinning Ring Co.

While many single flange rings are in use, the double flange ring has doubtless been the most popular. It was thought to be economy to buy rings with two flanges so that when one flange became too badly worn for further use the rings could be turned over and the other flange would be ready for many years service. The writer has had personal experience in using "turned over" rings and frankly in his opinion they did not give very satisfactory service. Where the rings fit into the holders they had become slightly roughened, and they appeared to be pitted with rust. We started the turned over rings with lighter travelers than commonly run, but even then the ends felt tight and came down quite a lot. Other mill men report their use to be quite satisfactory.

In an article appearing in COTTON (Oct. 1930), it was recommended that rings be bought with only one flange finished, then later when it became necessary to turn the rings, they could be sent back to the manufacturer who would finish the other side. In this way the mill would have two rings, both practically new, for only slightly more than the cost of the single flange rings. (It was suggested that when the rings were removed from the frame to be sent off, a notch be cut on the worn flange so that this side would not be used again.) A prominent spinning room overseer was telling the writer recently that his mill had installed several frames of these rings. Off-hand we think this will be much more satisfactory than the older method of finishing both flanges when the rings are new.

Users of large size travelers have friction troubles that probably do not worry spinners of fine yarns, using lighter travelers. To help overcome this friction from the large travelers, a curved web ring is available, the web curving inward so that the traveler point cannot touch it. Fig. 1a shows this curved web ring and for comparison Fig. 1b is the ordinary ring, both in cross section and both mounted with the same kind of traveler.

Several types of ring holders are on the market. Some mills prefer the plate holder and others one of the various kinds of cast iron holders. If left to the section man he would probably prefer the cast iron holder as the plate holders are more apt to work loose and cause ends to come down. On the holder is usually provided some kind of traveler cleaner which prevents the accumulation of lint in the traveler.

A is circle representing ring; B circle of bobbin; C line through centers of concentric circles; D tangent to bobbin indicating pull of yarn from traveler to bare bobbin; E angle of yarn pull for yarns of 4.75 twist multiple not less than 23 degrees; for yarns of less than 4.75 twist multiple the angle should not be less than 27 degrees.

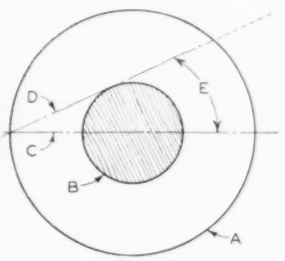


Fig. 2

The diameter of the ring to be used for any certain yarn number is dependent upon many things including spindle speed, length of traverse, staple, etc., so that any figures we might give would be subject to modification according to local conditions. There is, however, a certain relation between the size of the ring and the diameter of the bobbin that can be used together successfully. Fig. 2 shows how the proper size bobbin can be determined for any given ring. While the legend beside the figure is practically self-explanatory, if on checking, the angles are found to be less than those suggested it might be well to consider buying larger bobbins.

Damaging the Rings

We have said that rings are remarkably trouble-free, and they are, but they do wear out in time, and sometimes they are misused. Occasionally a ring will be damaged in changing travelers. In this case the end will usually not run, but sometimes the end will stay up and cause the traveler to wear out quickly. The wrong kind of travelers are sometimes used, or travelers that are too heavy, all causing excessive wear. When a ring becomes worn and roughened it will cause the traveler to wear out quickly so it is poor economy to continue to use worn rings. About the only remedy we know of for worn or broken rings is to replace them, (or to turn them over). The section man should carry only a few new rings on hand and these should be kept wrapped in oiled paper to prevent rust. When the rings begin to show signs of appreciable wear it is better to change an entire frame at a time instead of just picking out the worn rings, for the new rings will require a little lighter traveler until they are broken in, and of course it would not do to have two sizes of travelers on the same frame.

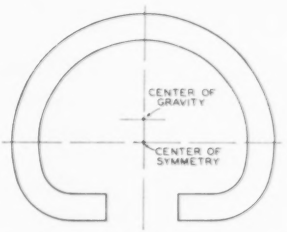
The spinning traveler has been in use less than one hundred years. The invention of the traveler is credited to Thorp about 1844. Later Hicks made the first commercial travelers in his kitchen. Then came Mason, who invented the traveler machine, paving the way for traveler making on a large scale.

The Spinning Ring Traveler

The parts of the traveler are the bow, the horns and the flange, Fig. 3. When a mill man orders travelers he specifies the flange, the circle and the number. A traveler with a number one flange means a traveler with the proper opening for a number one flange ring. The circle is the inside circumference of the traveler. Travelers are of course not true circles but some are segments of a circle and others are elliptical

Traveler speeds will range from 3500 to 6000 feet per minute depending upon the size of the ring and the spindle speed.

It would seem that no mechanism about the spinning frame has been changed to suit the whims and ideas of so many different men as has the traveler. One authority* affirms "that 11,000 to 12,000 different styles of travelers are found today in the stock rooms of the leading manufacturers of travelers in this country". Perhaps the manufacturers are themselves to blame for some of this as there has been a lack of uniformity in the numbering systems of the different companies, but this is only part of the story. The difficulty of determining just what is happening to the traveler when in actual operation has been part-



Courtesy National Ring Traveler Co.

Fig. 3

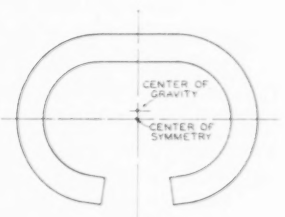


Fig. 4

The parts of the traveler may be seen easily in Fig. 3. The two illustrations show the regular traveler at left, and the traveler at right has the center of gravity considerably lowered. . . . .

ly responsible for so many ideas as to the correct shape of the traveler. But with the high speed camera and the stroboscope the traveler may be "stopped" so that its position when traveling at a mile a minute can be observed.

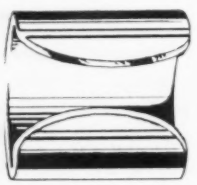
There are a number of distinctive types of travelers on the market. One concern puts out a traveler with beveled edges (See Fig. 5). Another traveler has an oval-shaped opening in the bow. This creates an air current tending to conduct the heat away and helping to keep the traveler clean. In the next few paragraphs it will be explained how others, because of their special shape, run without undue drag on the ring flange.

In recent years the traveler people, with the cooperation of the mills, have been working on the problem of reducing the contact of the traveler with the ring, for friction of the traveler in contact with the ring causes wear of both the ring and the traveler.

*Saco-Lowell Bulletin, Feb. 1937.

Even before it became possible for the traveler to be observed in actual operation, mill men knew from the condition of the rings where the friction was greatest, but it is only in the past few years that much has been done about it. Fig. 6 at the left shows a regular traveler on the ring, in cross section. It will be observed that the traveler is being pulled over by the yarn until the inside horn comes up against the flange of the ring, while the outside horn is touching the web of the ring, and in time will wear a groove in it. At the right is shown the newer type traveler with inside horn only touching ring.

Fig. 3 is an enlarged drawing of a conventional shape traveler, showing the center of gravity and the point of symmetry, while in Fig. 4 a traveler is shown with the center of gravity considerably lowered, the principle being the same as lowering the center of gravity in the new automobiles to make driving safer, especially around curves. Fig. 6 at the right is an illustration of one of the new type travelers as it appears on the cross section of a ring. It will be noted that the inside horn only is touching the ring, and stroboscopic observation shows this contact to be very light, and the traveler seems to "float" around the ring. It might be mentioned here that with this type traveler, since friction against the ring has been reduced, a heavier traveler will have to be run to produce the same drag on the yarn.



U. S. Ring Traveler Co.

Fig. 5
Beveled Edge Traveler . .

In the light of the foregoing facts it would seem that it would be well for the mill to consider seriously new findings concerning travelers and at least do some experimenting with the latest type travelers on a frame or two, keeping accurate records of ends down, breaking strength, life of travelers, etc. It has been our observation that tests of this kind are often left to inexperienced, though doubtless ambitious young men, with the results that important details are often overlooked. Then frequently, as tests are some trouble, there is a tendency to conclude the tests too early and often before all the facts have been ascertained.

Changing Travelers

Travelers should be run as long as possible because of their cost and because of the loss of production while the frame is stopped for the travelers to be changed, yet they should not be run long enough for the worn travelers to damage the yarn or wear the rings excessively. Different mills have their own methods of changing travelers. In some mills, especially on medium and fine work, the travelers are allowed to wear out and fly off. In the other mills the doffers change the travelers at regular intervals, while in some mills the section men do the changing.

We have found it a good practice to work out a schedule, depending upon the number of frames on each section and the length of time that the overseer decides that the travelers should be run, so each week a certain number of frames of travelers will be changed. One way to handle this is to have two section men work together, one to break off the old travelers, the other to put on the new ones, and the doffer on whose "side" the work is being done to thread up the new travelers. Care should be taken in breaking off the old travelers and in putting on the new ones so as not to damage the rings. Travelers that are badly worn, or very liight travelers, break off easily, but those that are not worn much, or heavy travelers, will sometimes give a little trouble in breaking off.

We have found a coiled wire to be a very handy device for use in putting on travelers. At one end the wire is looped to prevent the travelers coming off and at the other end the wire is sharpened to facilitate "threading" the travelers on the wire and snapping them on the ring. The travelers are spread out on the work bench by the section man and threaded on a number of wires before any old travelers are broken off. If this is done very much in advance of the time when they will be needed it is well to write the size of the travelers on a tag and push the pointed wire through this tag. This keeps the travelers from coming off the wire and also serves to identify the size of the travelers on each wire. After a little practice the travelers can be threaded on the wires very rapidly and it is fairly easy to develop the small skill of putting the travelers on the rings.

There are other methods of putting on travelers but the plan we have tried to describe has been found to be very satisfactory and permits this work to be done with a minimum of lost time.

Small cups or holders are provided on each side of the spinning frame for a supply of travelers for the spinners to use when a traveler breaks and flies off. In mills where there are wide changes of yarn numbers, when it becomes necessary to change the travelers because of a change in number of yarn, it is well to remember to remove all of the travelers from the holders on the frame, and put in a supply of the new travelers. Any travelers left on the wires previously described should be put back into the boxes.

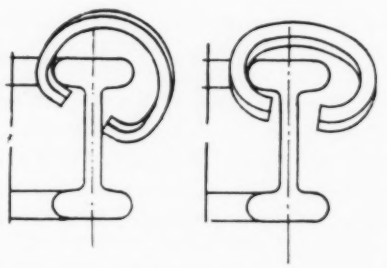


Fig. 6

Courtesy Victor Ring Traveler Co.

At right is shown new type traveler; note only the inside horn touches the ring. Compare with figure at left . . . .

The quality of the yarn being made depends so much upon the traveler that when something goes wrong the travelers should always be checked. If the travelers are too heavy the yarn will chafe, will be weakened and the ends will come down badly. If too light a number of traveler is used the yarn will tend to whip against the separators, account of greater ballooning, this will tend to fray the yarn and make it weak and also make the ends come down. The light travelers will also cause soft bobbins as the light travelers will not lag behind the spindle as well as the heavier travelers so the winding will not be firm. If the travelers are run too long, especially with coarser

(Continued on page 55)

World Rayon Production

THE world's production of rayon, including yarn and staple fiber, again broke all previous records and approached the 2-billion-pound mark, according to figures in the current issue of the *Rayon Organon*, published by the Textile Economics Bureau, Inc.

Rayon output in 1938 for all countries (yarn plus staple fiber) aggregated 1,948,045,000 pounds, a 7 per cent increase over the 1937 production. Japan again held first place in 1938 with 584,600,000 pounds—30 per cent of the total; Germany was second with 24 per cent, 471,000,000 pounds, and the United States third with 287,485,000 pounds; Italy, fourth, produced 268,310,000 pounds.

The United States regained its position as the world's largest producer of rayon filament yarn, with 257,625,000 pounds which exceeded that of Japan's 209,600,000 pounds by 23 per cent.

Production of rayon filament yarn and rayon staple fiber by countries for the past three years follows:

Showing production of both rayon filament yarn and rayon staple fiber by countries for the past three years (000's omitted)

	1938	1937	1936
Japan	584,600	508,600	320,850
Germany	471,000	344,200	193,435
United States	287,485	341,925	289,940
Italy	268,310	262,900	196,100
Great Britain	138,195	152,420	142,970
France	72,550	77,700	66,100
Netherlands	19,950	23,920	22,050
Belgium	12,800	17,160	14,200
Canada	13,700	16,500	13,625
Poland	22,450	16,270	12,900
Russia	16,000	15,400	13,600
All Others	41,005	41,080	34,980
WORLD TOTAL	1,948,045	1,818,075	1,320,750

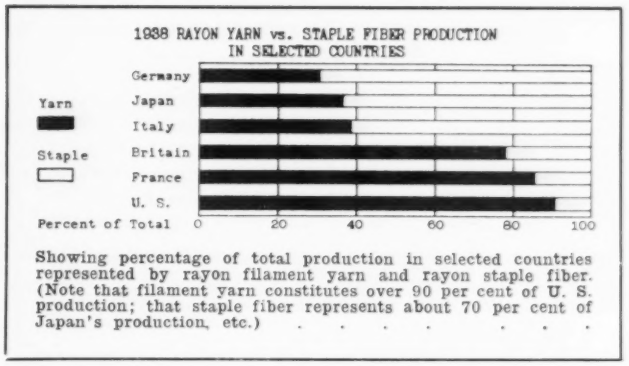
Although the *combined* output of rayon yarn and staple fiber amounted to a new record, the filament yarn branch of the industry experienced its first decline in 24 years. Thus the 1938 production of rayon filament yarn at 990,245,000 was 17 per cent below the all-time record high of 1,198,760,000 pounds established in 1937.

Production of rayon filament yarn only, by leading countries, for the past three years (000's omitted)

	1938	1937	1936
Japan	209,600	334,350	275,000
Germany	141,000	125,000	99,050
United States	257,625	321,680	277,640
Italy	101,425	106,550	86,000
Great Britain	106,450	119,700	116,810
France	61,750	66,400	59,500
Poland	13,700	14,000	11,700
Canada	13,700	16,500	13,625
All Others	98,695	111,080	96,850
WORLD TOTAL	990,245	1,198,760	1,022,550

Production of staple fiber continued as an important element in the rayon picture. The total 1938 production of filament yarn was 990,250,000 pounds—leaving 957,800,000 pounds, or nearly 50 per cent of the combined total, as rayon staple fiber, which only a few years ago represented a negligible portion of the whole.

Thus, the Organon points out, the new record for total rayon production in 1938 was made possible by the tremendous growth in rayon staple fiber. The world production of rayon staple fiber in 1938, 957,800,000 pounds, compared with 619,315,000 pounds in 1937, or an increase of 55 per cent. "But in contrasting the 1938 performance of staple fiber with that of rayon filament yarn," the publication explains, "it should be remembered that the circumstances which brought about the decline in the production of filament yarn helped, rather than hindered, the staple fiber industry. Certain countries, notably those included in the 'nationalistic' category, intensified their efforts during 1938 to build up their staple fiber production to make up for the lack of adequate supplies of cotton and wool. Foreign exchange difficulties also may be cited as a reason for the government sponsorship of the staple fiber industry in those countries."



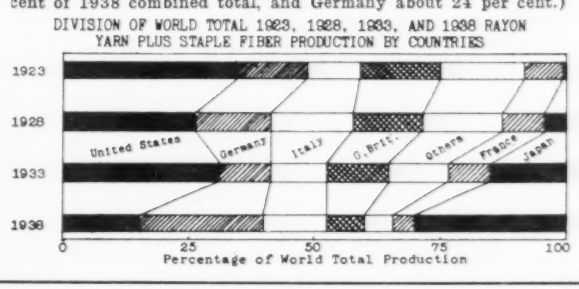
Showing percentage of total production in selected countries represented by rayon filament yarn and rayon staple fiber. (Note that filament yarn constitutes over 90 per cent of U. S. production; that staple fiber represents about 70 per cent of Japan's production, etc.)

Figures on the production of rayon staple fiber by leading countries for the past three years (in thousands of pounds) follow:

Production of rayon staple fiber only, by leading countries, for the past three years (000's omitted)

	1938	1937	1936
Japan	375,000	174,250	45,850
Germany	330,000	219,200	94,385
United States	29,860	20,245	12,300
Italy	166,885	156,350	110,100
Great Britain	31,745	32,720	26,160
France	10,800	11,300	6,600
Poland	8,750	2,270	1,200
Canada	None	None	None
All Others	4,672	2,980	1,605
WORLD TOTAL	957,800	619,315	298,200

Division of World Totals for 1923, 1928, 1933, and 1938 of rayon filament yarn plus rayon staple fiber, showing percentage of world total production produced in each of several leading countries. (Note that Japan produced about 30 per cent of 1938 combined total, and Germany about 24 per cent.)



As to other synthetic fibers, the *Organon* explains that its figures do not include such other man-made fibers as spun glass, Nylon, Lanital, etc. Relative production of these is small, with the exception of Lanital, the casein-base synthetic fiber. "Lanital was first made commercially in Italy in 1936 and that country is now the largest producer of this fiber," the publication states. "The history of Italian Lanital production is as follows: 606,000 pounds in 1936, 3,580,000 pounds in 1937, and 3,710,000 pounds in 1938. Casein-base fibers are also produced in other countries, but actual production data are not as yet available. It is generally believed, however, that the amount produced outside of Italy is small."

Figures on world production of leading textile fibers for 1938 are given as follows: Cotton, 13,600,000,000 pounds (76 per cent of total fiber production); wool, 2,220,000,000 (12 per cent); silk, 78,000,000 pounds (1 per cent); and rayon, 1,948,000,000 pounds (11 per cent).

The Lap Meter X-Rays the Picker Room

By H. Grady Lyon

THE TEXTILE MILL now has access to a machine which is just as much assistance in diagnosing picker troubles as the X-ray machine is to the doctor in locating broken bones or safety pins in the baby's tummy. All told, it is the lap meter, which unrolls a yard of picker lap before a light so that it can be inspected for evenness, pinches off exactly one yard, and drops it onto a scale to be weighed.

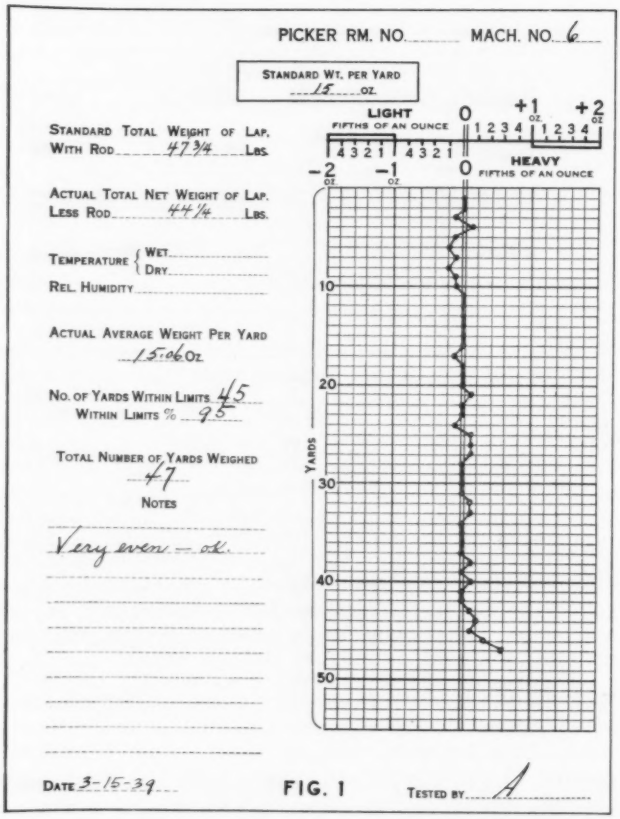
We think this is quite an improvement over the old method of unrolling the lap in front of a window, crawling along the floor with a frame to cut off exactly one yard (and then missing it), and carrying it to the scales, where it is weighed along with any dirt it may have collected.

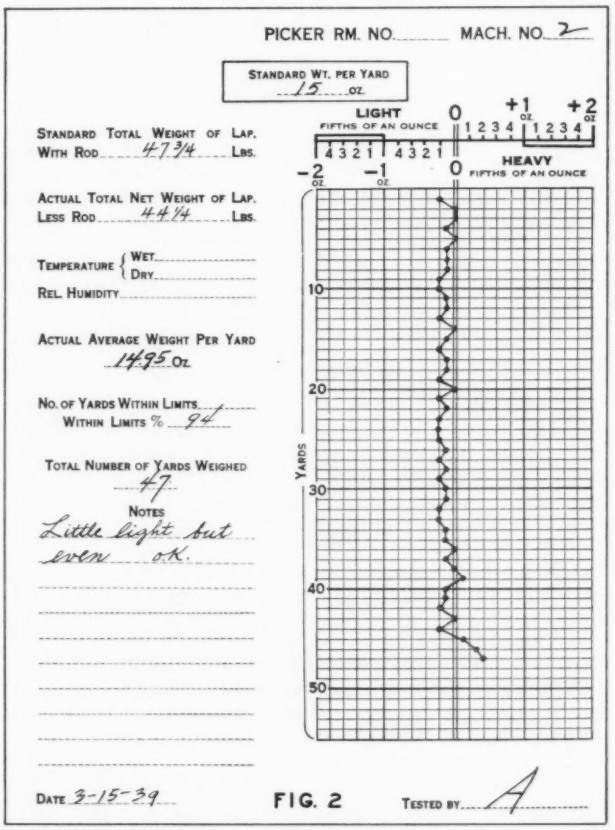
The operation of the machine is quite simple. The lap is placed on top of the winding roll and is fed down through two detaching rolls that pinch the lap off evenly when exactly one yard is wound off. It is operated by one person, and after placing the end of the lap between the detaching rolls the operator simply presses the foot treadle, starting the lap to unwind downward onto the scale pan, where the weighing takes place. The machine automatically knocks off after one yard is put through.

During this unwinding, which takes place slowly, the operator can inspect the structure of the lap, aided by reflectors and lights behind it. All thick and thin places may be seen in this yard of lap as it is unwound.

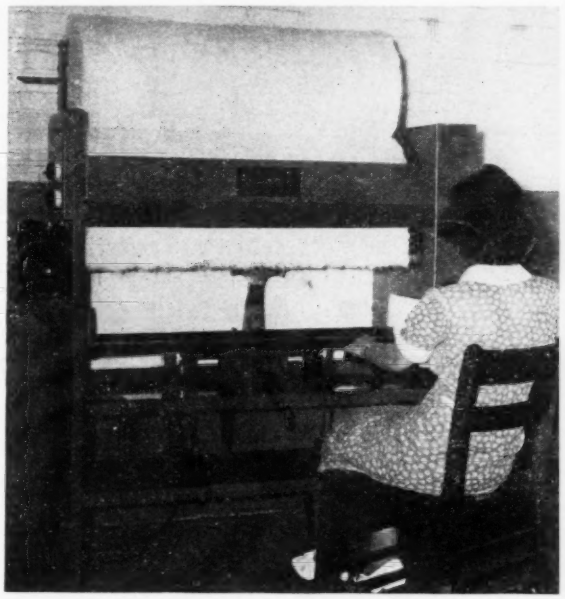
The scale pan is balanced to the standard weight lap (in our mill it is 15 ounces) that the picker runs. The dial or indicator is divided into 4-ounce divisions, with two ounces being heavier than *zero* (the standard), and two ounces being lighter. This arrangement is placed on a card (available from the manufacturer) and may be seen in any of the accompanying figures. The light and heavy indicator on the record is divided into fifths of an ounce and the inspector runs the lap from start to finish, recording each yard of variation as shown in Fig. 1.

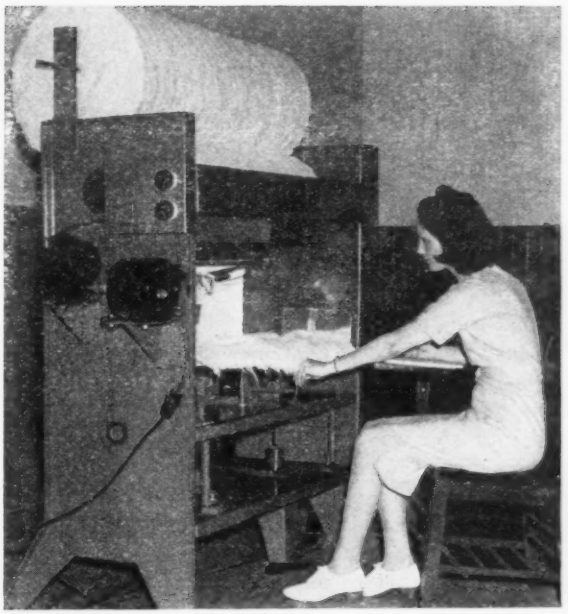
The analysis of Fig. 1 is as follows: We can readily see that the lap is quite even throughout and that this particular picker is producing good work. The cotton is evenly distributed on the cage screens, and this may be noted by the inspector as the cotton passes over the reflectors from yard to yard. If the laps are found to be uniform in thickness and





Operation of the lap meter is quite simple. The operator simply starts the machine, which automatically unrolls exactly a yard of picker lap, pinches it off from the roll, and drops it into the apron of the scales. At left the yard of lap is beginning to unroll, while the operator sits back and inspects it as the lap passes in front of a lighted area. Right, the lap is pinched off and has fallen into the apron of the scales and the operator is weighing it. Records are kept similar to Figs. 1, 2, and 3 in the accompanying article.





Photos made at Callaway Mills for "Cotton".

in weight, we will get evener card sliver and consequently evener work throughout the remaining processes.

Fig. 2 shows a record of a lap that is even throughout, but the weight is lighter than standard.

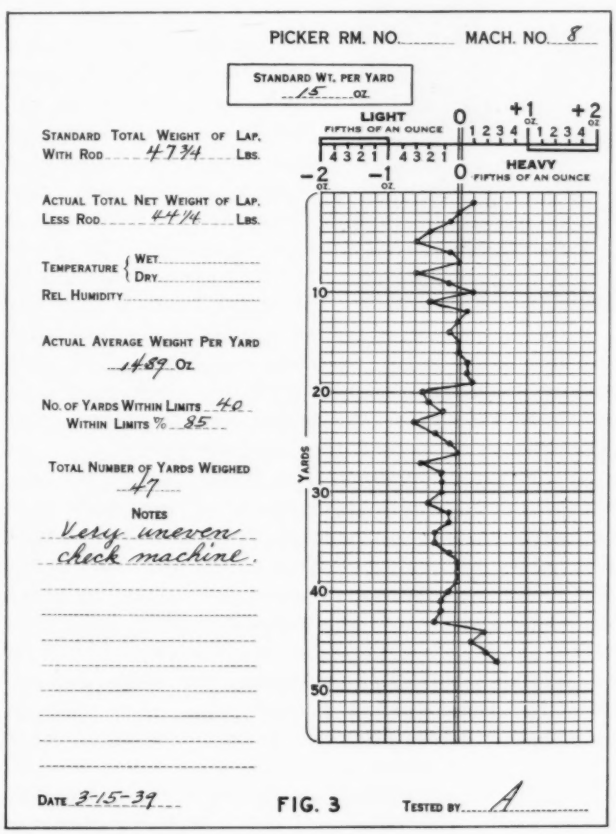


FIG. 3

Notice that it is on the light side of the standard zero line. This does not mean that the picker is producing bad work. This variation may be caused by the tender not noting atmospheric changes as early as he should have, or some other operating fault not entirely caused by the picker itself. Sometimes this may be remedied by the operator moving the evener to the heavy side.

An illustration of the record made by a bad lap is shown in Fig. 3. The lap is not uniform in weight from yard to yard, and during the inspection of this lap thick and thin places were seen as noted on the chart. When a lap of this type is permitted to be run through the card we can expect an uneven sliver resulting in uneven work throughout the remainder of the mill.

Machine Points to Source of Trouble

This particular machine was examined by the fixer and he found that the leather around one end of the screen had worn to such an extent that it was losing air. This caused the cotton not to become properly distributed on the cage screen. This lap could have been caused by permitting the supply of stock to get too low in the hopper. Some of the other possible causes may be: Wrong setting of the damper, beater too far away from the feed roll, damaged cage screens, and slippage in the fast moving parts of the machine.

The advantage of such a diagnosis is that we have something in black and white to tell us that the machine is producing good or poor work. It also provides overseers with permanent records of the picker room. The lap meter is an accurate and time-saving device that indicates real troubles in the picker room. It can trace uneven yarn where we may least suspect it.

It cannot talk and it won't walk over to the picker and place a finger on the trouble, but it is an excellent indicator and when used with a fair amount of interested intelligence it will help clear up some mighty troublesome picker room problems.

Variation in Waste from Cards

By Briggs Young

DUE TO THE CLOSE MARGINS under which most mills have been operating it has been necessary to reduce all possible costs to a minimum. With this in mind, we have begun to try to eliminate all places where good stock is being permitted to get through into the waste. It has been customary to check this percentage very closely on opening and picking, but on the cards, due to the great number of individual deliveries, this figure has been only approximate and often entirely lacking.

In the determinations made to show the waste percentage on cards we first took three or five flat strips and weighed these on a grain scale. The average weight per flat strip in grains was considered as the indicator of how much waste was being removed. After several tests by this method we began checking variation between flats on the same card and found that the variation was as great as the variation from card to card. It seemed that our test was not accurate enough. We tried ten flats and came to the same conclusion.

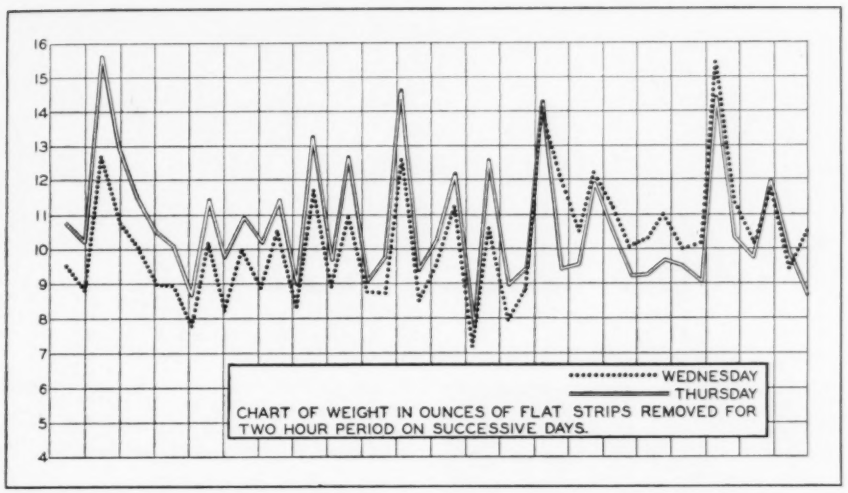
Next we tried catching *all* the strips that came off in *one hour's run*, and using the theoretical production as 100 per cent, this gave the percentage of flat strips delivered over a one hour period. However, after checking the actual production for one hour against the theoretical production for one hour it was apparent that there was too much variation due to belt slippage, pulley differences, etc., to call this an accurate figure. It was necessary to check the actual production in pounds in order to get an accurate record of the stock the individual card produced in this one-hour period.

Further checking showed that more flat strips were being removed just before the hand or vacuum stripping is begun than at any other period of the stripping cycle. Immediately after the stripping operation the flat strips decreased noticeably in weight. This indicates that after stripping, while the cylinder is filling up, the waste which would ordinarily come out as flat strips goes into the cylinder as vacuum strips. This showed that flat strips taken for any one hour out of the four or more in the stripping cycle would not be representative of the total or average strips being removed over a four or more hour period.

By the same reasoning, if the amount of cotton fed is constant (which it is) and the amount of waste is a variable (which tests have shown to be true) then the weight of the stock delivered varies in direct proportion to the amount of waste which is being taken out. Naturally then, it would not be practical to take one hour's production as representative when we know another hour will give a greater or less amount depending on the stage of the stripping cycle at which we choose to catch the sample hour's run. Thus it resolves itself into the fact that an accurate waste determination must include all the strips, and all the sliver produced in a stripping cycle. That is, a period from one stripping through the next stripping.

As we begin to get closer into the problem, the question arises as to what effect different laps would have on the same card. In other words, would a card give a consistent waste percentage over a period of several days with different laps being run. In order to answer this question, a group of 22 cards was checked for flat strip waste. Then the next day the same cards were re-checked and the waste percentages for both days were plotted on a sheet of graph paper. From the accompanying graph it is obvious that the waste percentages are almost identical from day to day regardless of the laps used.

Up to this point we have considered flat strip waste only as representative of the whole card with no consideration for the motes and fly taken from under the licker-in and the hand stripping taken out of the stripping brush. (The waste cannot be handled with a vacuum stripper due to mixing waste from individual cards.) In order to determine what effect these added wastes would have on the variation in the total percentage being removed, we began to check these along with our flat strip tests. One thing most noticeable in this connection was the fact that there was considerably less variation in the waste percentages when considered as a whole, than when taken as individual wastes (flat strips or "toppings", hand strippings, and motes and fly.) This seems to indicate that where there is a card with a low percentage of flat strips, the same card has a higher percentage



IF YOU are planning to run waste tests on cards, you will find much helpful information here, and probably save yourself time and trouble. The facts presented are interesting but the author does not arrive at a definite conclusion, even to his own satisfaction. He is, however, able to get better results on his carding now than before the waste tests . . . .

of motes and fly, or brush strippings or both. The same is true where the motes and fly percentage is low, the strips, brush and flat, are higher so that there is a tendency for the total waste to equalize itself toward the average for that group of cards. (Considerable average difference will be noted between the grinders' sets, due probably, to their interpretation or "feel" of the same settings.) It is not to be understood, however, that each card will average itself to the same amount of removed waste, if they did there would be no necessity for equalizing the amount of waste being removed.

Waste Varies with Different Cards

Further examination of the graph will show that with the most accurate waste determination the waste from some cards will run 30 per cent to 50 per cent higher than the cards on either side. Now, if a given percentage is correct for one card, waste for 30 per cent to 50 per cent more or less than this must be too little or too much. If a comber is set for a 16 per cent waste and it takes on 20 per cent, something is done about it. Yet if a card is set for 6 per cent and takes out 9 per cent (50 per cent too much) it stands a good chance of getting by for indefinite periods of time. If a card is set for 6 per cent waste and takes out only 4 per cent (33½ per cent too little) the stock is not being properly carded.

How, one will now ask, is this to be remedied? Frankly, I don't know. Some cards will yield to one thing, some to another. On some you will probably try both without much effect. The writer has understood that the setting on the front plate (top) controls the amount of waste being removed. Yet on cards where the waste was excessive we have closed up the setting from 34/1000-inch to 15/1000 inch with practically no changes in the amount of waste being removed. On others a slight change seems to give the desired effect. Some cards are corrected by adjustments of the back plate, while others respond to changes on the screens or mote knives. Since it would not be practical to have a separate list of settings for each card it becomes necessary to equalize or average these settings into a group setting which can be applied equally to all cards. This can be done only after repeated tests have been performed to determine which settings are giving the most desirable results.

Frequently we find differences in what is supposed to be the same setting. Different persons have different conceptions or "feel" so that unless there is some form of checking, certain settings "creep" of the original. This is especially true on mote knives, screen settings, and feed plate where it is difficult to check or easy for differences to come up.

The best results we have been able to get so far were obtained by checking all the settings as close as possible to the average which have been set up for that particular card room conditions, (cotton, humidity, etc.) Then by frequent checks on all cards, determine which cards were excessively high or low and having a head grinder or other responsible person investigate these cards and give each his individual attention.

The photo on the foregoing page was made by Robert Yarnall Richie in the West Point (Ga.) Mfg. Co., and is used through courtesy of Wellington, Sears Co.

Spinning Room Practice

(Continued from page 50)

yarns, they become worn and damage the yarn. The foreman and the secondhand should be on the alert to be sure that the correct travelers are being used and that all travelers are being changed on schedule.

Summary of Defects Caused by Bad Rings

Ring too large for bobbin:	Stretched and weak yarn Excessive wear of travelers
Cracked ring:	Causes travelers to burn and fly off Ends down (a) Loss of production. (b) Increases spooler knots
Worn rings:	Excessive wear of travelers Ends down Uneven twist, as travelers may sometimes be retarded
Travelers too light:	Yarn frayed by whipping against separators Slack twist in yarn Soft bobbins, account too little tension of the light travelers
Travelers too heavy:	Stretched and weak yarn Ends down Excessive wear of rings Chafed yarn
Worn travelers:	Ends down Chafed and weak yarn

Timely Topics Discussed and Fun Had at STA Myrtle Beach Outing

THE ANNUAL CONVENTION and outing of the Southern Textile Association was held at the Ocean Forest Hotel, Myrtle Beach, S. C., June 15-17, with a good crowd consisting of mill men, associate members of the association and their wives enjoying the occasion. There were entertainment and sports for all, headed by one of the best show troupes ever to perform for the superintendents and overseers of the southern mills, the Eulene Holmes troupe of Atlanta. Swimming, golf, sunbathing, horseshoe pitching, set-back, bridge, etc., were participated in by those attending the convention. The mornings were taken up in business sessions, the afternoons and evenings being given over to lighter festivities.

P. B. Parks, Jr., was elected president of the association for the ensuing year, succeeding L. J. Rushworth, who successfully led the association the past year.

The meeting officially opened Thursday night with the associate members' banquet and floor show, to which were invited officers of the association, the board of governors, their wives, and members of the association arriving early. Friday morning the first business session was held, with L. J. Rushworth, Riverside & Dan River Cotton Mills, president of the association, presiding. In the annual president's address Mr. Rushworth paid tribute to the other officers of the association and to the divisional chairmen for their efforts in carrying out the work of the association, which is devoted to increasing the technical knowledge of the overseers and superintendents of southern mills. He touched briefly on world conditions, showing how conditions at home and abroad affect industry. Drawing an analogy between the Magna Charter, which was drawn up centuries ago, it was pointed out that the world of tomorrow for those days is this country of today. Mr. Rushworth traced machinery development before and since the great industrial revolution, emphasizing that this was made possible by such men as compose the association of today.

Report and Photographs by John C. Fonville.

Left, P. B. Parks, Jr., of Erwin (N.C.) Cotton Mills Co., newly elected president of STA; right, Harvey B. Rogers, Parks-Cramer Co., who heads associate members division for ensuing year . . . . . .

Strive for Safety in the Mill

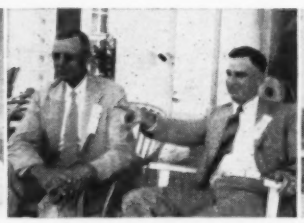
The president called upon textile men to eliminate occupational hazards in their plants and to encourage community safety and dispense with selfish hazards. In closing he advised that the operating man post himself on the present trends of legislation and its effect on the textile industry. He also stated that he would like to see the association cooperate with other organizations of the textile industry in a dignified constructive program to insure the right of every person from the highest executive to the humblest employee "freedom to labor in his chosen field."

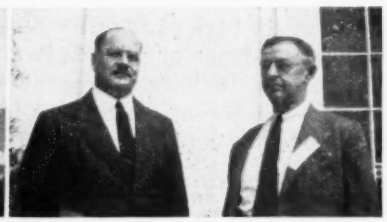
Need for Research in Textiles

The next speaker at the Friday morning session was E. R. Schwarz, professor of textile engineering at the Massachusetts Institute of Technology, who went into a study of the fundamentals of the new textile technology, saying that "the more we learn about synthetics the more we learn of value about the natural raw materials of the textile industry, and conversely, the more we learn about the basic properties of the natural fibers, the more of importance we discover in regard to the fundamentals of synthetic fiber structure and production." He touched upon the testing methods often employed by laboratories or mills which many times fail to measure the property under investigation, though conducted in perfectly good faith. He suggested the use of the manual or handbook to relieve the technologist of carrying in his head continuously a mass of detailed information, the presence of which could clutter up his mental process so as to prevent clear thinking.

Touching on the subject of research, Dr. Schwarz said "it is a sad criterion of progressiveness when we have to go to the Bell Telephone Laboratories for current information on moisture effect on textile fibers" and he emphasized the need for a vast amount of fundamental research to furnish us with a knowledge of the ultimate constitution of our present fibers, both natural and synthetic. The speaker then went into a discussion of the molecular structure of the fiber.

Left to right, Dr. C. Sylvester Green, president of Coker College and speaker at the Saturday morning session; B. Ellis Royal, secretary of the STA; T. W. Mullen and Virgil E. McDowell of Rosemary Mfg. Co.; Mrs. and Mr. L. J. Rushworth of Riverside and Dan River Cotton Mills, the outgoing president; Dr. E. R. Schwarz of M. I. T.; and Marshall Dilling, A. M. Smyre Mfg. Co., executive secretary of the STA.





First picture from left to right, Otto Pratt and Larry Taylor of National Ring Traveler Co.; W. C. Taylor, N. Y. & N. J. Lubricant Co.; Ira Griffin, Stein-Hall; Earle Mauldin, "Textile World"; and Ward H. Bushee, American Yarn & Processing Co. In the center group are seen H. F. (Smiley) Taylor, Jr., of Staley; Mrs. M. T. Poovey; Bill Randolph, Staley; Leona Smith, Victor Ring Traveler Co.; and M. T. Poovey of Rockingham. At the right are the members and their wives preparing for the group picture, the negative on which was later destroyed by excessive humidity in the photographer's quarters.

The final speaker for the Friday morning session was H. H. Willis of the Clemson College textile school, who discussed the "little things", such as being tactful in suggesting changes within the plant, having patience in explaining situations, being prompt and fair in dealing with grievances, giving the employees correct information so as to promote loyalty, and knowing your people. He suggested that the executives study each job within the plant with two questions in mind: "What constitutes a proper work load?" and "Is the proper standard of machine efficiency being maintained?" Pointing out specific instances, he showed how speeds should be considered in relation to machine efficiency, and how the running of the stock could well be taken into consideration when figuring job loads.

Friday afternoon was given over to golf and other sports and card games, with the annual banquet and floor show Friday night, at which sport prizes were awarded and ladies were given attendance prizes.

Saturday Morning Meeting

Dameron Williams, Gastonia, N. C., opened the Saturday morning session with a discussion of cotton, its handling, grading, general characteristics, and the present policy of the government to control the cotton crop. In quite a humorous manner he compared the present control policy and its probable ultimate failure to the attempted-control and failure by England of the rubber market and Brazil in the coffee production, both of which, he supposed developed from the Biblical story of Joseph and his granary, which was filled during 7 years of plenty and consumed during the 7 years of famine. He intimated that conditions are slightly different today from conditions in the Olden Days.

Dr. C. Sylvester Green, president of Coker College, Hartsville, S. C., presented an excellent inspirational address on human relations, a subject of prime interest to every mill man of today. Dr. Green sincerely advocated the necessity for developing the trait of "getting along with people" and recited the story of the minister who could deliver his sermons with splendid oratory, but could not be in a group of people five minutes without antagonizing someone. It was said of this minister that if he could be lowered into the pulpit by ropes on Sunday morning and quickly withdrawn as soon as he had completed his sermon, not to be seen any more until next Sunday he would be the best minister in the coutry. He simply could not get along with people.

Dr. Green traced the development of two eras in American history, and the beginning of the third. The first of these was geographic and began with the seeking of new trade routes from the Old World to India, which ultimately led to the settlement of America; this era ended with the purchase and development of Alaska. The second he called the industrial era or the machine age and the age of mass production. This era, according to the speaker, is blamed for the present unemployment, but he pointed out that the machine age is responsible for even greater employment and certainly gives to the average person things that formerly were not within his power to purchase. He touched briefly on the wage and hour law and its possible effect on employment, reviewing the scale of living in sections of the country, a point not taken into consideration in this recent bit of legislation.

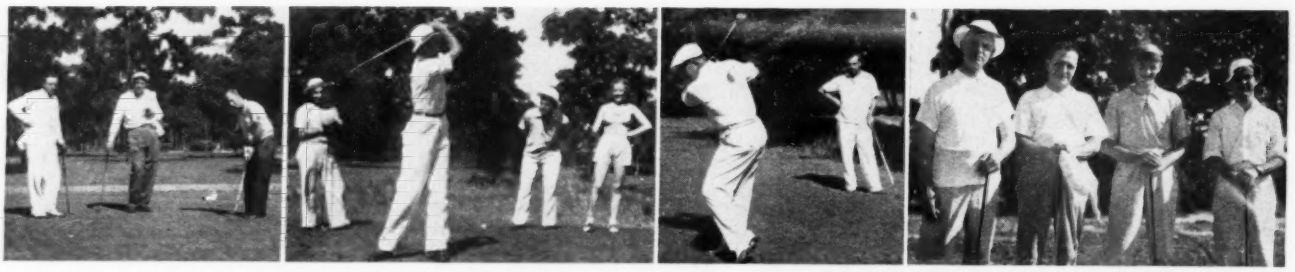
The third era, as developed by Dr. Green, is the era of human relations, wherein we magnify the invisible or intangible, and by which

Associate Members Banquet

On Thursday night preceding the opening of the STA meeting, the associate members division, composed of traveling men and other representatives of allied textile concerns, with W. H. Randolph, Jr., A. E. Staley Mfg. Co., as toastmaster, held the annual associate members banquet, with the members of the association as their guests. The Eulene Holmes Troupe of Atlanta put on an excellent floor show. John Fonville of "Cotton" magazine served as master of ceremonies and Jack Greer, Frank G. North, Inc., and Bob Ashworth, Ashworth Bros., as property men. Following the banquet there was dancing on the patio, with Frankie & Johnnie's orchestra playing.

Harvey B. Rogers, Parks-Cramer Company, was elected president of the associate members division for the ensuing year, with Ernest J. Eaddy, The Textile Shop, Spartanburg, as vice-president, and Junius Smith, "Textile Bulletin", Charlotte, secretary-treasurer.

Many of those attending the convention enjoyed the surf; seen in the first group standing from left to right are Frank D. Lockman, Monarch Mills; J. L. Brannan, Hermitage Mills; and Walter Greer, Frank G. North, Inc. Sitting, from left to right are Larry Taylor, National Ring Traveler Company; Jack Greer, Frank G. North, Inc.; W. C. Taylor, and Falls Thomason of the New York and New Jersey Lubricant Company. Chatting with Miss Leona Bell of American Cotton Manufacturers Association are D. C. Neese of Odell Mill Supply Company; John Fonville, "Cotton"; and Bob Ashworth of Ashworth Bros., Inc. The seven Tarzans from left to right are Paul Williams, Sonoco; Falls Thomason, N. Y. & N. J. Lub.; Fred Decker, Textile Specialty; Arthur Jarrett, Highland Park Mills; Red Davis, Stein-Hall; Luke Castile, Keever; and "Ack" Wright, Gulf. Digging sandfleas are Frank Lockman, Monarch Mills, and Ernest Eaddy of The Textile Shop.



Some of the golfers at the Myrtle Beach convention. From left to right, Bill Brigham of Greenville Belt & Supply Company and E. V. Wilson of Watson-Williams watching S. A. (Red) Roane of Abbott practice putting. Second group, J. Z. Lancaster, Pacolet Mfg. Co., driving with Paul Thomas, Moreland Chemical Co., left, John Reed, Ashworth Bros. and, Evelyn Day of the Eulene Holmes Troupe looking on. Beginning his drive is Phil Worth of Saco-Lowell Shops with Fred Alexander of General Electric, right, awaiting his turn. The foursome caught on the fairway is composed of T. W. Mullen, Rosemary Mfg. Co.; Dave O'Connor, and Thomas Nelson, of Penick & Ford, Ltd., and Bob Stutts, Woodside Cotton Mills.

Winners of Prizes

There were enough sporting events and card games so that the outing member could take his or her choice and enter one or more events. In deference to age, beauty and lack of participants, no foot races were run.

For mill men, Gordon Cobb, Charlotte, N. C., took the golf prize offered for Low Net with a 73. Second Low Net, P. B. Parks, Jr., Erwin (N. C.) Cotton Mills, 74; Low Gross, Henry Wood, Oconee Mills, Westminster, S. C., 84; Second Low Gross, W. H. Miley, Jr., Erwin (N. C.) Cotton Mills, 91; High Score Prize captured by H. H. Willis, Clemson College, 132 (strokes counted only when ball moved 10 feet).

For associate members Fred Alexander, General Electric Company, won Low Net and H. P. Worth, Saco-Lowell Shops, was a close second. Low Gross, Ed Reid, Sonoco Products Company, 80; Second Low Gross, Webb Durham, Foster Machine Company, 86; and High Score, John Reed, Ashworth Bros. (time three hours).

In the set-back tournament, arranged under the supervision of George Snow, Atlanta Brush Company, M. T. Poovey of Rockingham, N. C., and R. G. Spratt of the Charlotte Mfg. Co., took first place. Mrs. M. T. Poovey won the bridge tournament conducted for the ladies.

Barnyard golf (horseshoe pitching) was won by L. F. Baker of Hermitage Cotton Mills, Camden, S. C., with W. H. Miley, Jr., of Erwin, N. C., as runner-up.

we can benefit society as a whole through the individual person. The speaker offered no panacea for our present conditions, but suggested several points which may make our lot more bearable under conditions as they have developed recently: 1. In our own intimate associations, which begin at home, be frank, sincere, and fair in our dealings. We cannot be Dr. Jekyl at the office and Mr. Hyde at home. The first act of honest human relations begins at home. 2. Recognize the rights of those in our surrounding social sphere and community. He suggested the joining of civic clubs as these mediums teach the knack of getting along with people. The story was told of the wealthy man that wished to set up a trust fund for his descendants so they might benefit most in life; this man was informed by an emminent lawyer that in order for his descendants to benefit most from the wealthy man's money, it would be advisable to invest his funds in the present generation and the law of averages would have to be trusted to see that his descendants prospered as the result. He must give his money to charities, the wiping out of disease, and for educational purposes, and in this way his children and children's children would better receive their share of his wealth. 3. Have the proper dignity for every man and his job, regardless of his position in life. 4. Extend our human relation acts beyond the boundaries of our own country. Try to understand the philosophies of our foreign neighbors.

Parks Heads Association

Following this address the association went into its annual business session. P. B. Parks, Jr., superintendent, Erwin (N. C.) Cotton Mills, was elevated from chairman of the board of governors to president of the association. Frank D. Lockman, superintendent, Monarch Mills, Lockhart, S. C., was named as vice-president, and J. O. Thomas, Marshall Field & Company, Spray, N. C., was made chairman of the board of governors. Marshall Dilling, A. M. Smyre Manufacturing Company, Ranlo, N. C., was re-elected executive secretary, and B. Ellis Royal, "Textile Bulletin," Charlotte, was re-elected corresponding secretary. The board of governors for three year terms are as follows: Joe Lyons, Orr Cotton Mills, Anderson, S. C.; T. C. Pegram, Erwin Cotton Mills, Cooleemee, N. C.; R. T. Stutts, Woodside Cotton Mills, Fountain Inn, S. C., and W. E. Hammond, Balfour (N. C.) Mills. For two year term, J. Z. Lancaster, Pacolet (S. C.) Manufacturing Company; and for one year term, Virgil E. McDowell, Rosemary Manufacturing Company, Roanoke Rapids, N. C.

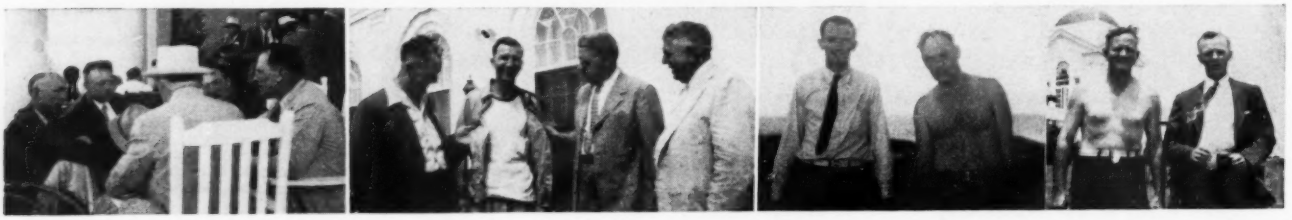
President Rushworth was presented with the Past President's Medal in appreciation for excellent services rendered.

A resolution was passed to incorporate the Southern Textile Association.

Although the convention and outing of the Southern Textile Association is the annual get-to-gether of the members at either a mountain or seashore resort, where they may enjoy a brief respite from mill operations, the main work of the association is carried out in the discussion meetings, held during the spring and fall.

It is at such meetings that the open forums are held where superintendents and overseers may discuss mutual textile problems, which are beneficial to all attending, and which when reported accurately by the textile magazines become the record of mill practice that is so helpful to the industry at large. The open forums are held where super- open discussion meetings are a con- the textile industry.

Seen sitting on the veranda of the Ocean Forest Hotel, C. W. Cain, Steel Heddle; Louis Batson, Southern Shuttles; Carl Moore, Howard Bros.; Dick O'Steen, Walker Mfg. Co.; and I. B. Covington of Wade Mfg. Co., with back to camera. Inspecting the jacket worn by Billy Kline of Stein-Hall are left to right Manning Bolt, Calhoun Mills; W. W. Rodgers of Poe Mfg. Co.; and Walter Greer of Frank G. North, Inc. In shirt sleeves is L. F. Baker of Hermitage Cotton Mills, winner of the horseshoe pitching contest; and in bathing trunks W. H. Miley, Jr., Erwin Cotton Mills, runner-up. At the extreme left are Ed Reid of Sonoco and Dave Batson, Southern Shuttles, drinking lemonade.



THE JACQUARD LOOM

By James A. Ward

(Article 2)

The Cross-Border Jacquard

THE CROSS-BORDER Jacquard is unequalled for the manufacture of shawls, tapestries, damask table cloths, and fine towels. This machine is a double-acting, double cylinder Jacquard, but for cross-border work may be used as a single cylinder machine, either cylinder being worked as required. Fig. 6 is a side view of a cross-bordering Jacquard, showing the arrangement of the hooks and needles, with the supplementary set.

Number 1, is the hooks; 2, the needles; 3 and 4, needle-plates; 5 and 6, card cylinders; 7, a guide-grate for the hooks; 9, neck-cords; 10 and 14 are wire needle grids, with holding pins 16 and 16; 11 is a series of small vertical pins made from hook-

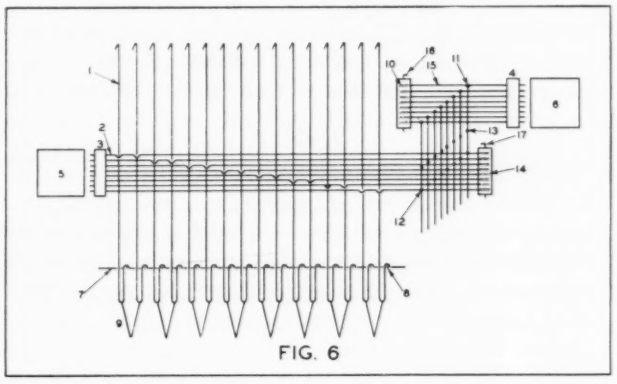
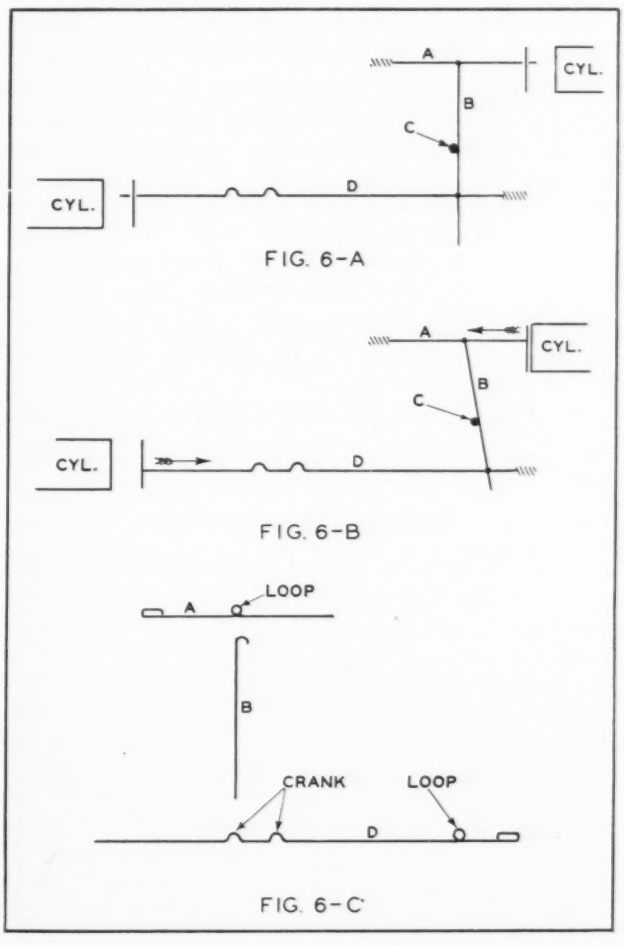


FIG. 6

wire and suspended from the loops of the needles in the supplementary set 15, and passed through the loops 12 in the corresponding needles of the lower set. Immediately behind each set of wire pins 11, is a small horizontal rod 13, which acts as a pivot, upon which rods 10, turn and transfer the pressure to the lower set of needles 2. Here a cross-bordering Jacquard which may be used as a single or double-acting machine is being considered. Fig. 6-A represents a single needle of the supplementary set before pressure has been applied by the cylinder. Fig. 6-B shows the pressure applied and the pin B forced against the pivot or fulcrum C, which transfers the pressure to the lower needle D. As will be seen from the arrow, the two needles move in opposite directions. Here only the cylinder of the supplementary set is assumed to be working. In Fig. 6-C at A is a sample needle of the supplementary set. This needle has no cranks, just a loop in which hang the small vertical rod, sample of which is shown at B (Fig. 6-C). Also in Fig. 6-C at D is a sample needle of the lower set. This needle has in addition to the two cranks, a loop for the wire pin B.

THE first article, appearing in the June issue, traced the history of the Jacquard loom and its development into the present-day machine. Also covered were single-lift, double-lift, and double-lift double-cylinder Jacquards. This article discusses many other types of Jacquards and their settings.

Motion is obtained from an eccentric on the bottom shaft, and transferred by a reciprocating rod, attached to a slotted lever, keyed on the end of a shaft, fitted on the back of the Jacquard underneath the card cylinder. A strong cord bisected by a spring, brings the free lever of the cross-border changing mechanism under control of the weaver. Only one repeat and a single border of pattern cards are necessary to weave any desired length of cloth. The single border may be woven in the ordinary way, in order to make the last border of the towel or



cloth, and the cylinder put into reverse to make the next or first border, returning the cards to their original position. Even if sufficient card-space is available, considerable economy in card paper is effected, particularly if the order is small, and the loom only likely to run for a short time.

If the loom is likely to make 200 cuts or more of any given pattern, it is better to cut and use the two borders of pattern cards and weave them straight through without any reverse action. In this type of machine the card-cylinders are swung from the top of the Jacquard, and not actuated by slides as in the ordinary machine.

The "Verdol"

The "Verdol" index and fine pitch Jacquard as made by Herm Schrocrs of Krefield, and the double-cloth Jacquard, though they possess the principles and movements of the ordinary machine, belong to a special class. Its very fine pitch, and the fact that it is constructed on the center or open shed principle, make it suitable only for highly specialized work and the slowest of looms. For the fine pitch Jacquard a saving of several hundred per cent is claimed in card paper alone, as a continuous roll of paper on a round cylinder is used instead of the usual paste-board cards. The perforations in the needle-plate are so fine it is impossible to operate the needles directly from the pattern-cards and cylinder. A supplementary and detached needle, operating at right angles to the ordinary needle is brought into use, and is controlled from underneath by the continuous roll of perforated paper.

The Double-Cloth Jacquard

The double-cloth Jacquard is only brought into use to produce a figured effect in such double woven goods as tapestries and carpets. Where each cloth is composed of yarns differing in quality, lea, and color, the figured pattern effect is obtained by an interchange of the cloths.

The Leno Jacquard

The leno Jacquard results can also be obtained from the ordinary double-lift machine, with the addition of "pressure harness" i.e., heddles worked in front of the ordinary Jacquard harness. But for continuous use the leno or gauge Jacquard is more suitable.

The Self-Twilling Jacquard

The self-twilling Jacquard has as its chief features (1) The control of from one to five hooks by each needle; (2) each pattern card serves for any desired number of picks; (3) only the figured part of the pattern requires to be cut in the card. These features therefore impart to this machine an unusual flexibility. Built on the closed shed principle as shown in Fig. 1, they are not adaptable to very high-speed looms. But this is compensated for by the fact that their principle use is in heavy and fine goods, or in other words, for double damask, so-called from its double or eight-end twill, shown in Fig. 7, at A.

The single, or 5-end twill shown at B is used in all damask, other than double. The binding or ground twill in the self-twilling machine is the same in ground and figure alike, and always runs in the same direction for a given amount of harness tie. The definition of outline, of ground, and figure, is not quite so clear, the clearness depending on the number of hooks per needle, and the number of picks per card. The less hooks per needle, and picks per card, the clearer will be the outline. In heavy and fine goods this absence of clarity in outline as between ground and figure is only perceptible upon very close scrutiny. The slight breach made in the twill or pattern where the harness is turned is more pronounced than in the ordinary Jacquard. When necessary this can be obviated by the use of pressure harness worked in front of the Jacquard harness. With this machine the actual saving in card-paper cannot

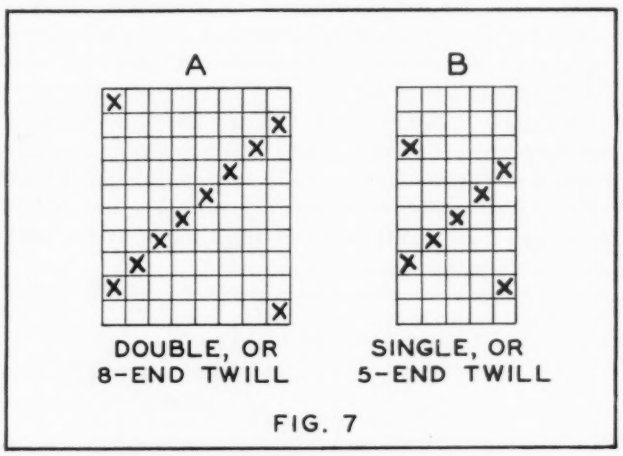


FIG. 7

be figured in terms of picks per card, since it is possible for one pattern to be used for several widths and lengths, even if the picks per inch of cloth are not the same in each case, or if the design was originally painted for a given fineness. Fig. 8-A will serve to illustrate this.

A set of pattern cards cut for the hook arrangement (Fig. 8-A) in No. 1 either A or B, will also serve Nos. 2 and 3. Example, No. 1 at A shows the plan for an 8-needle row Jacquard filled two hooks per needle $2 \times 8 = 16$. Hence,

$$\frac{600 \times 16}{8} = 1200 \text{ hooks.}$$

Example No. 2 is filled three hooks to each needle. Example No. 3 has four per needle $4 \times 8 = 32$,

$$\frac{600 \times 32}{8} = 2400 \text{ hooks.}$$

Thus, the figuring capacity is increased from 1200 to 2400 hooks, or 100 per cent, and the same pattern cards will serve.

The Jacquard may have 8, 10, or 12 needles in a row, but the number of hooks in each row from front to back, and also the number of knives, must be a multiple of the twill to be worked. Fig. 8-A is filled as for an 8-end or double twill. In this figure Example No. 1 filled for a 5-end twill would read as shown in Fig. 8-B.

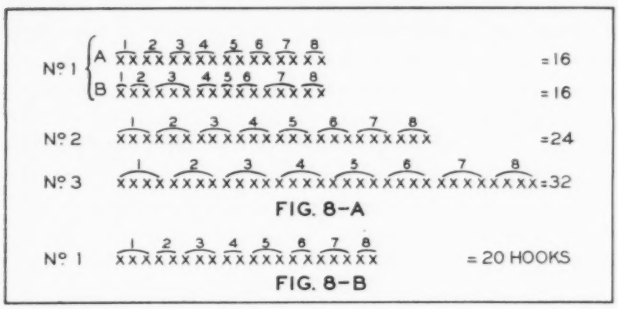


FIG. 8-A

FIG. 8-B

In this machine no neck-cords are used; each hook has its own individual harness attached directly to the hook. The great economy in cards practically precludes any cross-border problem, even considering the fact that this machine is a single cylinder machine.

The Adjustment of the Jacquard

These suggestions for the better adjustment of the machine proceed from an almost unique experience of some 25 years, in building and operating Jacquards of different types, in various parts of the world. If, from architectural defects, or adjoining looms, no obstructions exist, the Jacquards should be carefully centered to the loom, thus avoiding a difficulty sometimes experienced with parts of the harness not dropping fast enough. A low Jacquard is a contradiction of all experience. On the other hand, a high Jacquard increases card-space, permits all parts of the harness to drop quickly, and prolongs the life of the harness by from 25 to 50 per cent. The position of the glass rod frame is an important one. It should not be more than a half-inch below the knots of the neck-cords. If lower than this, the harness will overlap on the rods and not attain its correct level at the lay. This, with the height of the comber-board, should be carefully checked before the harness is leveled.

The comber-board or harness-reed, the name of which, like many of our textile words, comes to us from the days of the hand-loom. Originally the soft-twisted cord used for the Jacquard harness became matted above this board through continuous friction, which necessitated frequent combings in order to leave each individual harness free to drop. These boards were originally made in the form of a strong reed with cane dents; the rows of harness were kept separate by means of strong cord stretched lengthwise on top of the board. When the shed is fully open this board should be approximately one-inch above the knots. In a fast loom, and when much harness is raised at a given time, the lingoes will develop a swinging motion. The low comber-board, together with a small shed, will frequently prevent this. In unusually heavy patterns, where much more harness is raised than depressed, it may be found necessary to place a detachable wooden frame around the lingoes. One such is shown at Fig. 9.

Two wooden uprights B, with A and a complementary part nailed on B at D and E constitute the frame. From the floor the frame need only rise to the top of the lingoes, and the holes for wires C should come one-inch below the tops of the lingoes. When the comber-board is definitely fixed in position it should be carefully and clearly marked, showing its correct and original position. If the board becomes loose, someone errs, or an accident happens, the board can easily be replaced in its original position, preserving the level of the harness. It is of course equally important that the Jacquard be level and well secured against any swaying movement.

Humidity may raise, or wear (depress), the harness from its original level. Very often it will be found better to adjust the lay, rather than the Jacquard to the new level, but in some types of looms this is not possible.

The Size of the Shed

The size of the shed, or the opening made by the warp for the passage of the shuttle, is governed by only one rule. It should be sufficiently large to allow the shuttle a free passage without obstruction or

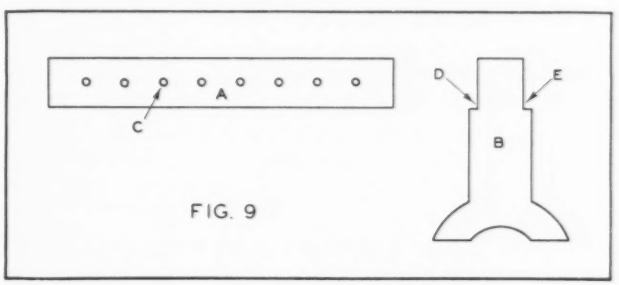


FIG. 9

deflection. This does not mean that the opening has to be so wide as to remove all possibility of the warp getting in the way of the shuttle. The shed may be small, and the shuttle touching it in its passage, but, if the shuttle is running straight no difficulty arises. The trouble is more often with the shuttle than with the shed. Not infrequently, sheds are found opening to almost the full capacity of the Jacquard. Such large sheds make a damask very difficult to finish, give a swinging motion to the harness, and compared with a normal shed will break incomparably more warp threads, and will shorten the life of the harness. In the adjustment of the shedding mechanism care should be taken to insure both sheds rising to the same level. It follows that the warp forming the higher shed opening, since it is subjected to a greater strain, will break proportionately more warp than the smaller one. To obtain a correct level, a good plan is to push the lay all the way back, mark the face of the reed with pencil, chalk, or crayon at the proposed height of the sheds, and level both to this mark.

In some Jacquards there are two ways by which the size of the sheds may be increased. In most Jacquards there is only one way. This of course depends on the method of erection. In some double-lift Jacquards the sheds are lifted by means of a shaft fitted above and resting on the Jacquards, and extending over the side to be in line with the cam shaft of the loom. On this shaft is fitted a number of half-pulleys, two for each machine. Fastened to each half-pulley in the center and extending to within reach of the knives is a 2-inch wide leather strap, which is connected to the knives by means of an

adjustable screw-bolt. This shaft is rocked above the Jacquard by a single lifting-pole connected to the shaft by a lever, which raises one shed in its ascent and the other in its descent. This arrangement permits an adjustment on the cam shaft whereby the circle there may be increased or decreased as desired.

On Jacquards fitted with two lifting poles, attached to levers above the Jacquard, the shed is increased or decreased by the throw of the levers corresponding to the treadles. In the single pole arrangement the sheds can be adjusted in this same way, and in addition at the cam shaft. Any increase in the size of the sheds must be met by an adjustment of the lifting-poles to ensure that the knives go a sufficient distance (about ¾-inch) below the heads of the hooks. All lifting-poles are threaded for several inches at one or both ends for this purpose.

The Timing of the Sheds

The timing of the sheds, i.e., the time at which the sheds should open and close, is just as closely related to the fabric as to the shuttle. The importance never varies, but the timing does, according to the fabric. Fabrics might be divided into three classes: under-square, square, and over-square. A square fabric has the same number of threads per inch, both warp and filling.

60 ends per inch of warp. 50 ends per inch of filling, is under-square.

60 ends per inch of warp. 60 ends per inch of filling, is a square cloth.

60 ends per inch of warp. 70 ends per inch of filling, is over-square.

Very frequently in light under-square goods the filling goes in too easily, making an uneven fabric. At times such a necessary thing as the stopping and re-starting of the loom will leave a mark which no finisher can hide, while in the over-square goods the difficulty is, to beat-up the extra amount of filling. Of the three main or principal movements of the loom—picking, shedding, and beating-up, only one is constant—beating-up; the other two, picking and shedding, are changeable, and require adjustment to the various fabrics. Of these two, the shedding is primary, and should be timed according to fabric construction, the picking must be adjusted accordingly. With an early closing shed the picking should be sharp and quick to get the shuttle clear of the falling shed. Of these three constructions the over-square is the most difficult to manufacture because it places an immeasurably greater strain upon both loom and warp. It is possible to time the shedding mechanism from three different points, but, since in all looms the crank or driving shaft is not turned in the same direction*, a common timing-point is preferable. This will be found at the back-center of the crank shaft, at which point the lay reaches the end of its backward movement and the sheds are fully open. An early timing is required for heavy over-square goods, and a late timing for light under-square goods. If the sheds begin to close before the lay has reached the end of its backward movement the sheds are considered as closing early. Should they remain open, and not begin to close until after the lay has started to travel forward, the sheds are closing late, as for light and under-square goods. In the heavy and over-square cloth a high whip-roller is absolutely necessary; this also will ease the strain of driving home the extra filling. Some practice may be necessary here before proficiency is attained. But, there are indications, which if heeded will help considerably. For instance, timing the sheds to close early for heavy goods, while it decreases the strain in the center of the cloth, it increases it at the sides, particularly the edges or selvages. If threads commence to break here, and the side-temples are acting properly, then the limit has probably been reached. If so, timing the sheds to close a little later will stop the threads breaking in the edges. On the other hand, when the sheds are closed too late in the coarse, light, and under-square goods, the warp threads have a tendency (if reeded two ends in a dent) to lie in twos in the cloth, giving it a reedy appearance. But this reedy appearance might be caused by a low whip-roller, or large wide sheds. It is one other thing that should be avoided.

The first important thing about the card-cylinder is the size. The card cylinder *must* always be ⅛-inch larger than the pattern-card. A 12-row pattern-card will measure approximately 3⅜ inches wide; therefore, the width of each cylinder square must not be less than 3½ inches. If words of the writer fail to convey the absolute importance of this, then the knowledge will have to be gained by the tears, and sweat, and vexation of bitter experience. To have the cylinder and pattern-card the same size means perpetual trouble for both loom fixer and weaver. No part of the Jacquard is subjected to a greater strain, does so great an amount of work, and needs such continual re-adjustment as the card-cylinder. It is forced outward at high speed, selecting in its passage each time a different pattern-card for the next consecutive pick. Almost before it has attained its equilibrium it is rushed back to the needle-plate, and with the selected card, controls through the needles, the hooks which the knives of the shedding mechanism shall lift.

Two methods are at present employed to operate the card cylinder. (1) By a goose- or swan-neck attached to the shedding mechanism; (2) independently from the bottom or cam-shaft, as described previously. Experience overwhelmingly condemns the first method, since it possesses no flexibility, and is therefore unsuitable for every class and condition of work. By this method, since the goose-neck is seldom plumb, to alter the size of the sheds is to increase or decrease the amount of pressure on the needles, necessitating re-adjustment. While, if compelled on a 12-row cylinder machine to operate

(Continued on page 94)

*(The author advises that all crank shafts do not turn in the same direction. In the European system of weaving, when the crank shaft is driving the lay forward to beat-up the filling, it is doing so from *top* center. In the American system the lay is driven forward to beat-up the filling from *bottom* center. The author also points out that all looms for the carpet trade use the European system of beat-up because many of the looms are of English make. It is thought that the American system of beat-up gives the shuttle more time to cross the lay.)

Trends in the Foreign Rayon Industry

By H. W. Rose

American Viscose Corporation

THE entire rayon industry in Germany is controlled by one man, Herr Kehrl, with the powers of a dictator. A very definite plan has been worked out to fit in with the broader plans of the national economy. It is divided into three phases, each simple but possible for complete operation only in a country where costs, prices, wages, the value of currency, and the production and sale of goods is under complete control.

The Industry in Germany

The first phase of quantity production (Germany produces about 400,000,000 pounds of rayon staple fiber annually) which enables the dictator to decree that fabrics shall contain a certain percentage of spun rayon, replacing natural fiber, cotton or wool which otherwise would have to be bought abroad. The percentage decreed requires just about the amount of staple now that the country can produce.

The second phase is one of research and experimenting to improve the technical qualities of rayon—to bring the strength of the fiber to a point where it can replace more or all of the natural fiber. The industry dictator has stipulated a certain percentage of income for this purpose, which is required of every producer.

The third phase is planned for low costs and low prices. Rayons are high-priced in Germany today, but it is figured that when the high tenacity makes it possible to decree a greater percentage, and when varied types broaden the uses of staple fiber, production will be at a rate which will give lower costs, and prices, which are set by the industry dictator, can then be lowered. The lower prices should also have the reciprocal effect of broadening the market for rayon and insuring consumption of the increased production. (The annual production is being increased by 50 per cent to a total capacity of 600,000,000 pounds of staple fiber by 1941.)

Rayon in Italy and England

In Italy, the same economic factors exist, with the same pressure on the textile industry to make and use rayon instead of the natural fibers. While there is governmental control of all industries, there is not the industry dictatorship nor the industry unified plan. Each company works out its own plans for production and technical developments, while the government helps with the markets.

In both England and American, rayon yarn and staple fiber take their place in free competition with the natural fibers without government pressure holding back one to help another.

A study of progress made in the two English-speaking countries indicates that without industry dictatorship, without concerted plans of the various producers, rayon has gone through a period of expansion and is now involved in concentrated technical development. The danger to staple fiber in the United States is that the low-price phase may be forced by competition from low-priced European staple before the research phase is completed. The dangerous part of the German program is that while maintaining prices at home they want to dump their product abroad.

These economic conditions are of interest in appraising fabric developments in the various countries. In the dictator countries we find a large number of fabrics in which rayon is used purely for substitution. For instance, oilcloth is made of rayon instead of cotton, whereas in this country there would be no point in using rayon in a material that would hide its usual merits without taking advantage of any of them.

Concentrated research has brought about a number of interesting developments, especially in new products in viscose and acetate yarn and staple fiber.

Strength in Filament and Spun Rayon

Viscose yarn is stronger than acetate yarn and both are stronger than spun yarn made from the respective staple fibers. While the dry strength of both types of yarn in both processes is satisfactory for most wearing apparel and house furnishings, there are some quite broad textile fields where greater tensile strength of rayon will permit its wider use. For this reason there have been developed in this country two makes of strong viscose yarn for automobile tires. Another strong viscose yarn is produced for general textile purposes where tensile strength and abrasive resistance are required. In England there has been developed recently a stronger acetate rayon, even stronger than viscose, which will be made in a new plant here.

In spun rayon, strength is important in the cotton industry because it is not as strong as filament rayon nor as cotton. Wet strength is important, for many spun rayon fabrics show a dry fabric strength equal to cotton fabric but need additional wet strength to withstand laundering. To meet this demand a stronger viscose staple fiber has been developed in England which is finding increasing uses here.

Strength of spun rayon is different from strength of filament rayon. It is dependent on inherent tensile strength of fiber, fineness of fiber, length of staple, staple dispersion, cleanliness and freedom from nep, evenness of spinning, yarn count, twist, humidity, and conditions of break test. It is therefore impractical to say in general that the stronger staple gives a certain percentage increase of

Abridged from an address by the author before the American Association of Textile Technologists in New York City on June 7, 1939.

strength over the standard.

In the worsted *industry* the strength of rayon staple is of no particular interest, for the manufacturer realizes he is dealing with a fiber already twice as strong as wool. In the worsted *trade*, however, strength seems to be everything, judging by the practice of trying to damn rayon blends through wetting fabric and breaking it. Even though the manufacturers know better, many parties handling worsted clothing have the impression that a suit of rayon blend will open up in a rain or part at the seams if the wearer works up a perspiration.

The Need for Resilience

What wool does have to a greater degree than rayon is resilience. In woolen or worsted fabrics one requires a certain character of hand, a springy, lofty, clothy feel. Resilience is the quality which makes a fiber spring back to its former position when bent to one side and released. Wool fibers are twisted out of their natural shape in spinning, and their resilience keeps straining to get them back into their original shape.

Efforts have been made to meet this requirement by giving rayon an artificial crimp. There is a crimped viscose staple in the American market. There is an acetate staple which is commonly referred to as crimped but which is practically straight and with considerably less crimp than standard viscose staple fiber. If crimp is what one really wants one must not be misled by the use of the term in the trade.

The Question of Crimp

The permanence of a crimp in staple fiber is important. There obviously is little use in going to the trouble of putting a marcel wave into a fiber just to make it look, in raw stock, like wool, if the wave will be drawn out in the normal processing and spinning of the fiber into yarn and weaving into cloth.

Chemical distortion of the surface or shape of the fiber is employed to produce crimp. If it fails to produce crimp it still might lend a woolly character to the fiber which is desirable. The so-called hollow filament fiber is in this class. It is not crimped but the fiber is inflated and the distortion of surface gives a distinctive hand. At the same time it has reduced strength and so is not used generally.

A viscose fiber of the woolly type is being made in England and is being introduced here. It is not crimped but it has a more woolly character than ordinary viscose. It is of interest in wool blends or for straight spinning in dress goods, hosiery, underwear, blankets, and suitings.

Another method of making a woolly type of fiber is by adding casein to the viscose. Such a fiber is on the market in Italy and has the added feature of giving a two-tone dye effect with regular viscose.

Synthetic Resin Treatments

Some resilience and wool-like character is given viscose fiber by synthetic resin treatment. This is a whole field in itself, and there are so many types and degrees of treatment that we will not attempt to do more than recognize it here as a decided trend. Treatment of fiber itself has not been adopted to any extent, but treatment of yarn is practical, and treatment of cloth is quite general commercial practice. It is employed much more widely in England than here, even though the finishing prices there are equivalent to ours here. They seem to recognize the merits of the treatment more than does our trade, and they are willing to pay for it. At least half the spun rayons are given a resin finish in England, while here it probably is not over five per cent.

Abraded Filament Yarn

The efforts in spun rayon to give new wool effects have brought out efforts to make filament rayon more like spun. A virtual cross between the two has resulted in the abraded filament yarn. A filament rayon yarn is run over a rough surface and some of the filaments are snagged or broken. Thus by doing deliberately what the rayon producer has for years tried to prevent, a new product is introduced which gives a fabric with some character of both the filament and the spun yarn fabrics. The abraded yarns are made in this country both in viscose and in acetate.

Artificial straw, or visca, has been on the market for years. As it gives a glint to braids and millinery and in drapery fabrics, it was thought that an attractive glint to dress goods might be captured by making fine straw or flat filaments instead of the usual type. This resulted in the production of a line of acetate flat filament yarns which give a novel effect. Thick and thin continuous filament yarn is another fairly recent innovation which produces a shantung effect. In Lancashire, spun rayon slubs are being made in 28-inch lengths with only an inch or so between the slubs. It makes almost a pique or bengaline type of cloth.

Stock- and Top-Dyeing

The cost problem of stock or top dyeing rayon in fast colors for wool blends brought about the production of a range of half a dozen colors in spun-dyed staple in England which is also available in this country. While it originated for worsted practice the Lancashire mills have taken it up and have found it quite economical in cotton practice. Fast colors can be spun into yarn at prices much less than is possible with fast stock-dyed material. The use of either stock-dyed or spun-dyed staple is more prevalent in Lancashire than here. Beautiful heather mixtures for fall are being made there this spring by blending colored fiber at the drawing frame, where the effect is controlled by the arrangement of colored sliver.

There has been a demand for a staple that would take wool dyes ever since rayon and wool have been blended. In some fabrics a union between wool and rayon is

• Here Mr. Rose, recently returned from a thorough trip among rayon producers and fabricators in England and on the Continent, presents up-to-the-minute observations as to the structure of the rayon industry abroad; and gives equally interesting descriptions of some of the newer trends in filament rayon and rayon staple fiber uses and applications by cotton, wool and worsted plants, etc. . . . . .

required in the same bath for economy's sake. In others a two-tone effect is desirable, as in piece dyeing of striped suitings. In another type it is desirable to replace wool with a rayon which will give a two-tone dye with viscose.

Casein fiber takes wool dyes and is being used for union dyeing. Casein and viscose compound fibers, such as Cisalfa and Railan being produced in Italy, and others in Germany, give a two-tone effect. In England, a viscose fiber known as Rayolanda has been developed, which takes wool dyes and viscose dyes, and which is suitable for two-tone effects in piece-dyeing.

An outstanding development for fall in England and here is a heather mixture made by piece dyeing fabric woven of yarn in which three or four different fibers are blended. Bright and dull viscose staple compose the majority and acetate and wool the balance. Three colors and a second tone of the ground color are produced in the finished fabric. The name chosen to cover these three or four fiber blends in plain yarns and weaves is the word "Trossach". The name is registered through the National Federation of Textiles and will be available for use as a generic name for this type of fabric.

MODERN METHODS OF DYEING

By Edward W. Pierce*

Article 7—Sulphur Colors

THIS installment covers the widely used **sulphur colors.** The next and final installment will discuss **vat dyes.** The footnote below lists the subjects discussed in preceding sections, copies of which are available upon request so long as the supply lasts.

As the series is reaching its end, comments from interested readers as to the desirability of having the entire series available later in convenient booklet form will be appreciated . . . . . .

THE SULPHUR COLORS differ from all other varieties of dyestuffs, both in their chemical nature and in their manner of application. They contain a large amount of sulphur and must be dyed in a sodium sulphide dyebath. The dyestuffs themselves are insoluble in water and must be brought to the state known as reduction, before they will go into solution. A chemical reduction may be brought about by means of almost any of the regular chemical reducing agents, but since the dyeing operation succeeds only in an alkaline solution, quite a number of substances are thereby eliminated; and furthermore, since it is always desirable to use the most economical materials, sodium sulphide has been accepted without further question. A reduction, solution and fairly satisfactory dyebath may be had by the use of caustic soda and glucose, but this is only used as part of the bath in certain cases, which will be discussed later.

Some sulphur colors dissolve in half their weight of sodium sulphide, some in equal weight and others in twice their weight. Even the rules given by the manufacturers for dissolving their products must be adjusted by the dyer according to the type of machine he is using for the dyeing process. A machine which does not permit of much air contact with the goods will naturally consume less sulphide than one where the air is beaten into a foam in the dye liquor and exerts its oxidizing action to a full extent.

While the solution of sulphur dye in sodium sulphide is fairly substantive toward the cellulose fibers, none of them is sufficiently so to exhaust a dyebath even fairly well without the addition of salt. The amount of salt required is very much greater than with direct cotton colors; many sulphur blacks will need upwards of 50 per cent of common salt or calcined Glauber's salt and then will only yield about half of the color, when dyed at a 1:40 ratio of goods to liquor. In such cases it is customary to save the bath and then replenish it for each subsequent lot. By reducing the salt by 50 per cent and the dye by 25 per cent each time till the fourth lot, we may get the shade desired with half the original amount of dye and only 5 per cent of salt. Such a standing kettle may run for years, if it is kept free from cotton waste and lint which falls off the goods. The fancy colors are better in their exhausting qualities and so are seldom run as standing kettles. In all cases the temperature is kept as near a boil as possible, there being no advantage in operating at lower temperatures, while the penetration and leveling is naturally better at a boil.

When a lot is finished, that is, dyed to shade, the liquor is either run off or returned to a storage tank and if the dyed material can get some good air oxidation before it is rinsed, the shades will be fuller, because if we run fresh water on the reduced dyestuff, as soon as the salt is no longer present, the water will strip off some of the reduced dye. It has been found advantageous to rinse the sulphur-dyed raw cotton in a closed circulating-type machine, with salt rather than fresh water. It is not as easy to oxidize a sulphur dyeing with chemical oxidizers as it is with vat dyes, because there will always be an evolution of hydrogen sulphide gas, which is rather unpleasant to have in such large quantities.

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(This series comprises abstracts of lectures delivered for several consecutive years to students in the art of dyeing, revised to adapt them to the general textile reader. The first installment, on page 48 of the December, 1938, issue of COTTON, began the series with a discussion of colors and a development of the color sense. The second article, on page 48 of the January issue, described the various types of textile fibers and their dyeing characteristics, and outlined the general types of equipment for dyeing loose fibers, yarns and piece goods. The third article, on page 92 of the February issue, covered the basic dyestuffs, the fourth, page 65, March issue, discussed the direct colors, the fifth, page 101, April issue, covered acid dyes and their applications; and the sixth, page 83, May issue, treated acid dyes containing metals and chrome mordant dyes.)

When we are doing sulphur dyeing in any type of machine where the goods are under the liquor all the time, we have only to concern ourselves with whether the dye is being taken up properly, which we adjust by the amount of sulphide and salt we use, but when we are dyeing on jigs, the goods are exposed to the air more than they are in the liquor. When rolled on a beam of the jig, the inner part of the material is protected by the outer layers, but the edge or selvage is exposed for the duration of the running of one end, before it again contacts with the reducing liquor. The result of this always is that the shade on the selvage is somewhat darker than the body of the cloth, but often the effect goes still farther and the selvages oxidize so much that the run through the liquor again will not reduce or remove the over-oxidized color.

Sometimes it is possible to clean up the selvages by a few runs through a fresh bath containing sodium sulphide only, but a better method is to prevent its happening at all. This can be done by replacing about a quarter or a third of the sodium sulphide with a mixture of caustic soda and glucose; this will maintain the reduction and solution of the color, but is not inclined to oxidize as quickly as the sulphide. It may take a few more ends to make the shade, but it is worth it to be free from bronzed selvages. Another remedy is to run shorter rolls, so the time of each run will be shorter and the color may be reduced before it has oxidized too far.

The Problem of Tendering

One of the great objections to sulphur colors, especially blacks, is that the goods are very likely to become tender in storage after finishing. This subject has been discussed at length for many years and it is still a question whether the sulphur that originates in the dyestuff or that which comes from the sodium sulphide is responsible. It is said that sulphur blacks all have a certain amount of their sulphur in an unstable condition; this sulphur gives to the black its solubility and later will oxidize all the way to sulphuric acid and so tender the goods. The remedy suggested is to oxidize this sulphur at once by means of bichromate and acid and so prevent it from changing later when the goods are stored. Some dyers saturate sulphur black dyed goods with alkalies, soap, sodium acetate, etc., to neutralize any acid that might form.

Another explanation is based on the fact that any commercial sodium sulphide is not true sodium sulphide, but sodium polysulphide, and will yield free colloidal sulphur whenever it is neutralized or oxidized. Colloidal sulphur is absorbed by cotton and when dry will oxidize in a few hours to sulphuric acid, not to sulphur dioxide as when it is burnt. If we want to prevent any free sulphur from separating in the bath, we need only have some caustic soda present, when it will re-dissolve the sulphur to form more sodium sulphide and so remove this source of danger.

Sulphur colors are used where the requirements are fastness to water and washing, the fastness to light is only fair and the fastness to chloring is absolutely nil, with the exception of a very few types. The series has never included reds, although there are reddish violets and maroon-like browns, yet they form a considerable item in our yearly dyestuff consumption and are very popular on certain classes of goods.

A few words are necessary regarding testing: It is a well-known fact that all sulphur dyes undergo a deterioration in course of time, even when kept in a cool dry bottle. What really happens is that they lose some of their solubility and fail to yield their fullest shades after a time, hence a test of a newly made lot against a standard that has been on hand for several years is quite worthless. In a sense these sulphur dyes are comparatively crude when compared with the carefully made direct and acid dyestuffs and a greater tolerance should be made for slight deviations from standards in strength and shade.

(The eighth and final installment in this series, to appear in an early issue, will discuss vat colors and thus, with the preceding installments, complete the coverage of the major textile colors.—The Editors.)

The Use of China Cotton in the United States

CHINA COTTON, which is used to considerable extent in this country in the manufacture of blankets, and which is run both as 100 per cent stock and blended with 50 per cent wool according to specifications, is processed into this product because of the character of the fiber. It is coarse and curled or kinky and gives a resemblance to wool.

China cotton is purchased from China at approximately 13 cents per pound (June 1938) with a staple of from ½-inch to ⅝-inch. It may be dyed the same as American cotton and used in a dyed blend of wool and China if desired.

This stock is rarely processed on the conventional American system of carding and spinning. According to a prominent user, the following system of processing is employed satisfactorily:

The stock is first taken through a bale breaker and placed in a bin. It is taken from the bin and run through a willow machine that is hooked in tandem with two vertical openers, from which it again goes to a bin. It is taken next through a Curtis & Marble No. 2 feeder which is attached to a Curtis & Marble picker, and then placed in another bin. From this last bin it is taken directly to the wool cards.

It is explained that the wool cards are of the regular type except that only two cylinders, the breaker and finisher, are used, whereas regular wool work usually is carded on three cylinders. The modern wool cards are equipped with tape condensers instead of ring doffers, and 96 ends are taken from the card, rolled up on spools and sent to the jack frames.

The jack frames merely insert twist and core yarn —no drafting being done at this process. The core yarn, which is 26s/1 put up on cones, is fed into the jack frame roll as the yarn is delivered to the rolls from the spools.

When white China cotton is mixed with colored China cotton or white and colored wool, the mixing is done at the No. 2 picker. The proper quantities are weighed at this point and mixed in the hopper.

CURRENT TEXTILE TOPICS ....

Talk of the Month

LAST SUMMER we found the cotton industry apparently at the forefront of the recovery from the secondary depression. But a year of international embroilments, with its repercussions upon domestic business, not to mention the unprecedented complications of national affairs, brought twelve months of futility for cotton manufacturers. Before the end of the spring, the signs pointed to a definite improvement in the general business outlook. Once more the cotton industry had a turning point, too, beginning about the first of June. The situation as to demand for goods was auspicious, helped along by a move for sound operation of mills. Buyers were in the market, with indications conclusive that the statistical position was at last sound.

Hope springs eternal— new epoch seems started

Chief difficulties attending the start of the second half of the year were affairs in which government regulation and control had a part. The wage-and-hour question was harrassing manufacturers and, at the time of writing, it appeared that definite action might not be taken until fall. The second, and a vastly greater concern over the past year—indeed a demoralizing factor since the fall of 1937—was government control of raw cotton.

New Deal ideas have had a test of a full six years. So far as we can see, they have been most effective where handing out largesse and most destructive where the sinews of government are derived—from private production. Between efforts of government to control as they have affected cotton mills during the past year, the status of raw cotton alone, with a constantly artificial position, has been enough to demoralize the business.

In all periods of depression, government has to face emergencies which entail larger expenditures. It is nothing new for taxes to increase when business is poor. But business emerges from such conditions and relieves the burden upon government so that taxes decline as the tendency proceeds and private industry can carry the load. New Deal ideas of regulation for the better distribution of the nation's wealth may be all right, but control which hampers the production of wealth entails perpetual government spending for non-productive purposes and increasing taxes to ultimate destruction.

It is ridiculous to proceed on the basis that conditions of a past age are entirely wrong and to assume that they can be changed overnight. The very principle of the NRA was based upon such conditions as that in the cotton industry, cited by President Roosevelt himself, wherein 85 per cent of the manufacturers were ready to operate on a fair basis, but regulation was necessary to enforce such schedules upon the reluctant 15 per cent. Cotton manufacturers themselves had long seen such regulation coming. The idea did not come out of a clear sky.

But the New Deal has not proceeded on the sound basis of evolution. It has been the reformer. The results have been favorable to a few, but at tremendous and growingly unbearable cost to the many. The majority reelected the Administration in 1936. If, as stated by William S. Knudsen, president of the General Motors Company, "the trend of thinking is slowly but surely turning toward the right," it may be that public at large is getting sick of regimentation.

Mr. Knudsen, early in June, stated that, "despite political handicaps, things will straighten out and business will be getting better." And the cotton industry, which had gone through the throes of persistent depression for months, finally seemed ready once more to take its place in the forefront of a business recovery.

As a matter of fact, buyers had deluded themselves with the belief that stocks of mills were accumulating all through the spring, whereas late in May it was learned that print cloth producers had decreased their holdings by 10 per cent between the end of February and the first of May. Production in that period, according to figures secured by the New York *Journal of Commerce* from such producers, was down 8 per cent.

Voluntary production in May by many mills suggested a further reduction of 10 per cent in cloth holdings. Meantime, users found that they had lost some business by too careful purchasing and the revelation of declining stocks in mill hands, together with the plans for more drastic curtailment of output through the summer, was sufficient provocation for a burst of heavy buying by consumers of gray goods.

Significant of the disastrous year that has been experienced, prices for goods at the start of the June upsurge in business of mills were at loss levels as they had been for the whole twelvemonth and longer. At long last, however, the whole industry seemed to be awakened to the futility of such business. It was indicated that curtailment of the summer by print-cloth producers would go even beyond the concerted plan of 25 per cent. High prices for cotton and extremely low prices for goods were a combination having much to do with individual action.

Worthy of the attention of the philanthropic Administration was the statement of the Cotton Manufacturers Association of South Carolina that, "paralleling the heavy financial losses of the mills in 1938, the number of spindles in place in the United States showed a decrease from 26,704,000 to 25,987,000 during the past year. The scrapping of this many spindles means not only a decline in cotton consumption but also a decline in employment opportunities."

On this point, the annual survey for ten years by the Association of Cotton Textile Merchants of New York says: "Further contraction of the industry during 1938 was an inevitable consequence of profitless

operations. The latest reported total of 25,680,020 spindles in place (including approximately 300,000 lost for the first four months of 1939) is the minimum reported in thirty-three years. It compares with 25,811,681 reported for 1906, on the eve of physical expansion, to nearly 38 million in 1925."

Unprofitable production, as pointed out by this association, penalizes all. The cotton industry without a reasonable profit margin, "cannot fulfill its national services in the consumption of American cotton, the employment of a large population and the supply of essential products."

Lack of such margin may be laid to unsound operations of mills. On the other hand, it is undoubtedly due in large part to conditions in the past year under which private business as a whole could not function properly.

New England Mill Situation

MERCHANTS IN THE PRIMARY MARKET for cotton goods cited a fillip to the demand for combed fabrics around the first of June, immediately following the burst of activity in printcloths, as a very significant thing for the industry at large. It was a token of sound merchandising methods, based upon a policy of manufacturing in accordance with market conditions. It paid in volume of business and improvement of prices much sooner than they would otherwise have been realized.

New England mills years ago were subjected to pressure from legislation and labor which created conditions under which survival depended upon sound operation and merchandising. Statistics of 1938 and of 1939 show that the same truth is forcing itself upon the South, now the dominant part of the cotton manufacturing industry. At the same time, the smaller division of fine goods is demonstrating for the coarse goods mills the efficacy of sound practices.

While the great printcloth division in the spring was gradually making up its mind to the proposition that drastic curtailment of production was essential to restoration of balance between supply and demand, pending expansion of the latter, combed goods manufacturers were taking definite steps very promptly to avoid accumulation. The ebb of spring buying was accompanied by a sharp cut of output.

In this action, they were not inaugurating a new program. It was a repetition of practices which have prevailed for the past year or two. But the principle is so comparatively new as to merit emphasis. It may be the beginning of a new era in the cotton manufacturing business, since the coarse goods division at last seems to feel that a change is necesary, and paramount even to such considerations as community dependence upon continuous operation of mills.

Indications of intended drastic curtailment by printcloth mills gave much of the early June stimulation to gray cloth business of all kinds. Combed goods always pick up secondarily to the coarse fabrics. The trade observers, however, expressed belief that the heavy business quickly placed in combed goods would not have been placed before July except for the statistical position achieved by lower production of the late spring.

Much interest was found, moreover, in the fact that sales were made at full asking prices whereas concessions are usually made at the start of a new movement. Mills did not sell a great quantity of goods before they began to demand advances. Their prices were, as in other divisions, still below cost of production. It was a common belief, however, that combed goods stood a good chance of rising before many weeks above the cost levels.

Consumption of Cotton Greater

Cotton consumption by mills in New England has been running relatively higher during 1939 than in 1938. That of April, for instance, was 67,776 bales, compared with 49,651 bales for the same month last year. This year, however, compares with a very low period in 1938. The more significant change in April was a drop of more than 17,000 bales from consumption in March, which was 84,839 bales.

At the end of May the First National Bank of Boston said in its monthly letter: New England mills, which tend to gear production rather closely to orders on hand, lowered their operating schedules by 10 per cent in April and are now running at less than 70 per cent of estimated capacity." Given a forward movement of business in general and prospects of a good fall, the reaction from this tendency should be substantial sometime in the summer; perhaps before this is published.

Encouraging to this district also during the past onth was the widespread advancing tendency in finished goods. In view of the false alarms for many months, the tendency was along conservative lines. There was hope, but no assurance, that here was the beginning of a real and lasting advance. Aside from politically disturbing possibilities, however, conditions favored a long pull forward.

Booth Mill May Dismantle

In the way of mill changes, the dismantling of the Booth mill at New Bedford seemed imminent at the middle of June. The plant employed around 600 workers on fancy cotton and rayon goods when last operated. The RFC has held the property intact since December, 1937, when it bid in the plant at a foreclosure sale after violation of the terms of a mortgage given the government agency as security for a loan.

Last report was that, if no offer was received in two weeks from a bidder who would operate the plant, the RFC might accept a pending offer from one who proposed to dismantle the mill. For a year and a half the RFC has tried to find a purchaser to operate the mill, preferring to keep it in operation. None with the necessary financial backing was forthcoming.

Municipal assessors of Lawrence, Mass., recently received word from the State Board of Tax Appeals that the Pacific Mills had entered an appeal for a reduction of about $1,500,000 on valuation of $4,922,625 placed upon its property in the city in 1938. The local board of assessors had failed to grant its petition for such a reduction.

The RFC also had an appeal pending for a reduction in the 1937 valuation of $75,000 placed on the old Lawrence Dye works property.

"THE SITUATION"

As Seen Across an Executive's Desk

June 16, 1939

THE EXPORT SUBSIDY, which has been a terrible source of bother for the entire textile business in both manufacturing and in sales ends, was revived after it had been buried by Congressional action when Secretary of Agriculture Wallace in a greatly heralded speech at Little Rock, Ark., flat footedly announced his policies: The application of an export subsidy, a processing tax, and a quota conference which would divide world markets among producers of cotton throughout the world. How one man can set himself up as an infallible dictator in the cotton business is inconceivable. So far no person connected with the cotton industry in any way has come out favoring the export subsidy. The very people to whom the real benefit goes, i.e., the foreign manufacturers of cotton goods, are opposed to it. Both foreign and domestic cotton manufacturers fear to buy cotton ahead and fear to sell forward goods with a resultant stagnation which is appalling when one examines the situation with the long view.

The United States Government policy has upset the cotton marketing machinery throughout the world.

Walter Parker, able cotton economist, says this scheme of export subsidy is not liked by most farmers or by the trade or by a great many members of Congress. It is hostile to Mr. Hull's Reciprocal Trade Agreement and would further disrupt the marketing machinery upon which cotton depends for orderly sale and distribution.

And, with all the hullaballoo and opposition to the subsidy it is interesting to see one leading Southern newspaper's solution which would be to pay the bonus to the cotton producer provided he adhered strictly to a "live at home" program, growing on his farm feeds stuffs, etc., necessary to the upkeep of his family and livestock.

Unfair Criticism

Out of the entire situation one of the most unfair criticisms of cotton manufacturers has evolved: that of the accusation contained in commentators' columns from Washington and statements from the Secretary of Agriculture to the effect that Southern textile mills are on a cotton price strike. Farmer and labor leaders have charged that the mill owners are closing their mills on the alibi of cotton shortage to undermine the price of cotton which has attained, this month, the highest point on the New York Exchange since 1935.

Anyone who knows anything about the cotton textile business knows that cotton mills always hope for higher cotton prices. They never have made money on a low cotton market. On a climbing market they, also, face prosperity.

At this writing it is expected that the appropriations of $113,000,000 for the disposal of surplus commodities attached to the Agricultural Appropriation Bill will go back to the House for consideration in a day or so for ratification.

To get away from "fights" for awhile it is interesting to see that some parts of the industry are working for something constructive instead of fighting against something destructive. For instance, the Texas Legislation put $10,000 on the barrel-head as a reward offered to the first Texan discovering a new use for cotton which will increase the consumption by 300,000 bales annually.

Mill Business Better

Now as to actual manufacturing conditions we find that business in the cotton textile world has hit a higher tempo according to the Department of Agriculture. In the South the report states that there was an increase in volume of sales and a general increase in prices, mill margins widening a little and averaging about 9.45 cents during May against 10 cents in April and 11 cents in May last year. The average margin for May over a ten year period was 12.10 cents.

The comparatively high rate of domestic mill activity was fairly well maintained during May, according to seasonally adjusted trade indexes. Although the daily rate of consumption for the month was probably less than that for April, it was well above May 1938. But with three more working days in May than in April, total consumption for the month is expected to exceed the 547,000 bales consumed in April. Indications are that total domestic consumption for the 10 months ended in May exceeded 5,700,000 bales against 4,860,000 bales in the corresponding period a year earlier, and an average of 5,100,000 bales for this period during the 10 seasons ended with 1938.

National Textile Industries Council

That our industry intends to watch its step is evidenced by the announcement today of the formation of the National Textile Industries Council. . . . probably one of the most momentous announcements in the textile industry in many years for this signalizes the culmination of hopes of many business leaders which have pointed in this direction for fully a decade. The purpose of the Council is to consider matters in the textile industry involving the common interest and welfare of its members and to aid in such ways as its members may conclude are useful in the welfare of those industries and the public interests.

It is made up at this time of the Cotton-Textile Institute, Inc., the National Rayon Weavers Association and the National Federation of Textiles, Inc., with C. T. Murchison (president Cotton-Textile Institute) as chairman; G. H. Conze (president National Federation Textiles) and Whitney Dall (president National Rayon Weavers Association) as vice-chairmen; Irene Blunt, treasurer; Paul Halstead, secretary. Each of the constituent associations has not more than seven representatives in the council.

Because of the tendency of textile plants to diversify their production and use the various fibers—synthetic as well as natural—it is felt that the formation of this council will lead to better understanding of textile problems as here there can be discussed the angles which up to now had no remedy in case of conflict.

COMMENT on the Cotton Market

June 16, 1939

THE COTTON MARKET continues to rule comparatively firm owing to the scarcity of "free" cotton, particularly of desirable grades and staple, values showing somewhat higher than one month ago. A sustaining feature of the situation was the much better demand for finished goods, and the large domestic consumption for May was not without influence on sentiment. The foreign political developments were not without their influence, but as there remains uneasiness regarding European and far eastern politics, traders remain cautious when operating. Recently from Lancashire came word of "hurry-up" orders from the government urging expedition of deliveries of Civilian and War Department orders. Britain appears to be definitely concerned over the far eastern political situation which may open a new chapter in Britain's position in the Orient.

As to exports of raw cotton from the United States, there is no improvement, with the outlook discouraging. Since cotton dominates the economy of the South, it affects the affairs of the whole nation, for it is the United States' principal trading item in world markets. Thus far this season, or to June 16, cotton exports from the United States total only 3,425,000 bales as compared with 5,665,000 bales to corresponding time last season, and a normal of about 8,000,000 bales. The falling-off in shipments of cotton from the United States has been so great, the total for this season promises to be the smallest in about sixty years.

Last year the United States sold to other countries 2,442,231,000 pounds of raw cotton worth $228,669,000. This year sales will likely be smaller. It is because these sales have been declining steadily from a peace-time peak of $1,059,751,000 in 1925 and owing to so much cotton, over 11,000,000 bales, being tied up in loans, that Congress is striving to devise some way of stimulating cotton sales abroad. Hence the different measures proposed in Congress to help improve the foreign demand for American cotton.

In the matter of exports from the United States to June 16 this season, compared with corresponding time last season, Great Britain is credited with only 466,000 bales versus 1,584,000; France 392,000 versus 743,000; Germany 473,000 versus 870,000; Poland 204,000 versus 244,000; Italy 303,000 versus 542,000, and Canada 213,000 versus 237,000. Of the leading nations, Japan was the only country to import more of American cotton than last season—862,000 bales versus 632,000.

Foreign cotton-growing countries in South America and Asia have been providing supplies of raw cotton to foreign cotton-consuming countries of the world at the expense of the United States when, so much of the staple is tied up in government loans, with a new crop in the making. In other words, foreign cotton-growing countries have evidently been underselling America. Something will have to be done by Congress in an effort to permit the government to get rid of some of its large holdings and to take care of the next American crop. It remains to be seen whether the subsidy bill or the parity payment bill will be adopted as a means of attracting foreign cotton-consuming countries to the American product.

Meanwhile, the market remains inactive pending something definite from Washington as to possible liquidative developments. The July position ruled tight and there was buying of late of new crop options on weather and crop reports, plus the demand for cotton goods.

The census bureau reported the final 1938 crop at 11,943,000 bales of 500 pounds each, with the acreage picked at 24,248,000 against 33,623,000 the previous season. The yield per acre was 235.6 against 269.9 last season.

Progress of The Growing Crop: Substance of government's crop summary for week ended June 13 is as follows:

"In the cotton belt temperatures for the week were moderately high and rainfall was frequent in considerable areas. In general, cotton made good progress in the western and more eastern portions of the belt, but much of the central area continues too wet."

The first new bale of the season was reported from Corpus Christi, June 12. This compares with first bale last year on May 31, and with May 26, 1931, the previous early record. The bale came from Starr County, Rio Grande Valley.

CENSUS REPORT, JUNE 14, 1939

United States—	Bales This season	Last season
Consumption during May	605,000	426,000
Consumption during 10 months	5,755,000	4,856,000
Mill stocks May 31	1,175,000	1,581,000
Stocks in public storage and warehouses, May 31	12,370,000	10,052,000
Stocks in mills, public storage and warehouses May 31	13,545,000	11,633,000
Stocks in mills, public storage and warehouses April 30	14,260,000	12,187,000
Active spindles during May	21,975,000	21,342,000
Active spindles during April	22,109,000	21,773,000
Consumption in cotton growing States during May	516,000	357,000
Consumption in New England States during May	73,000	57,000
Consumption in all other States during May	16,000	13,000
Consumption in cotton growing States, 10 months	4,878,000	4,124,000
Consumption in New England States, 10 months	722,000	598,000
Consumption in all other States, 10 months	156,000	135,000
Active spindles in cotton growing States during May	16,592,000	16,026,000
Active spindles in New England States during May	4,750,000	4,741,000
Active spindles in all other States during May	634,000	575,000

BRITISH BOARD OF TRADE REPORT FOR MAY

	Year 1939	1938	1937
Exports of yarn, pounds	11,000,000	8,000,000	14,000,000
Exports of cloth, yards	120,000,000	111,000,000	162,000,000

AMERICAN COTTON

August 1 to June 16—	Bales This season	Last season
Brought into sight (marketed)	10,562,000	14,942,000
Exports from the United States, including Canada	3,425,000	5,665,000
Spinners' takings—world	10,598,000	11,096,000

WORLD'S VISIBLE SUPPLY OF COTTON

June 16—	Bales This year	Last year
Stock at N. O. ports	1,960,000	2,537,000
Stock at 102 interior towns	3,708,000	2,782,000
Afloat to and at ports of Europe	504,000	1,865,000
Afloat to and at ports of Orient	137,000	158,000
Total of American	6,309,000	6,842,000
Total of Foreign	2,338,000	2,512,000
Total of all kinds	8,647,000	9,354,000

What the Southern Mills are Doing

Swift Manufacturing Company, Columbus, Ga., has begun work on a modern building to house the weave shed. Engineers for the building are Robert & Company, Atlanta, and contractor is A. K. Adams Company, Atlanta. The weave room will be 290x211 feet, the first floor of tar concrete with a subfloor and maple flooring on top of it. The second floor will be made from 2x6-inch timbers laminated and with intermediate and maple floor on top of that. The roof will be of tar and gravel with under insulation. Air-conditioning units will be Sturtevant; sprinkler equipment Grinnell; and electrical wiring by Walker Electrical Co.

Perfection Spinning Company, Belmont, N. C., has joined the ranks of the few plants having excellent safety records for over a million man-hours. This plant has the record of running over a million and a half man-hours without a single accident requiring medical attention. The record covers a period of six years.

The property and machinery of the old mill village and plant at Falls of Neuse, N. C., has been sold to Neuse Properties, Inc., of New York, which corporation will use the machinery for reconditioning and scrap purposes. It is understood that the mill will not be placed back in operation.

Burlington Mills, Inc., Greensboro, N. C., has let a contract for a one-story addition to the present office building of the company. Charles W. Angle will handle the work. It will be 40x80 feet and will cost approximately $20,000. Plans were drawn by Leon McMinn, Greensboro architect.

It is reported that a number of business men of Greenwood, S. C., recently held a conference with owners of a three million dollar finishing plant in New England on the proposal to move the business to Greenwood. No definite action has taken place yet.

It is understood that a 20-acre tract of land has been purchased near Greenville, S. C., by a Greenville textile manufacturing and supply company, to be used as a site for a manufacturing plant to be erected at some future date.

A new factory to manufacture bedspreads, bath mats, etc., will be placed in operation at Winona, Miss. It is to be operated by R. D. Sanders of Jackson, Miss., and a group of New York Associates.

Riverside Mill, Enoree, S. C., is installing new equipment costing about $75,000. It consists of two automatic spoolers and warpers and other equipment.

Hickory Dyeing and Winding Company, Inc., is building a new yarn plant at Highland, N. C. The building will be two stories, costing about $5,000.

Powdrell & Alexander, Inc., Danielson, Conn., have moved into a new plant at Charlotte, N. C., where curtain material will be manufactured.

Granite Cordage Company, Granite Falls, N. C., has announced plans for the installation of additional equipment.

Robinson Yarn Mill, Dallas, N. C., has installed some new roving machinery.

United Spinners Corporation, Lowell, N. C., are dismantling Mill No. 1 of the company, and will offer the building for sale. Part of the machinery will be sold and part placed in operation in Mill No. 2.

J. W. Clarke, receiver for the Locke Cotton Mills Company, has sold one of its units, the Roseglen Knitting Mill, Sumter, S. C., to interests whose identity has not been disclosed.

Textile Publications of Interest

American Lava Corporation, Chattanooga, Tenn. Bulletin No. 39 on "AlSiMag", a steatite ceramic insulation. Illustrates and describes thread guides for the cotton, silk and rayon industry.

The Bristol Company, Waterbury, Conn. Bulletin No. 533 on the new thermal converter known as the Thermoverter. The new bulletin describes the Thermoverter as it is used with potentiometers and millivoltmeters for a-c electrical power measurement and totalization.

Sun Oil Company, Philadelphia, Pa. A new booklet **Serving Industry**, well illustrated. It covers the important phases of petroleum produces, from the oil field to the consumer.

The Hinde & Dauch Paper Company, Sandusky, Ohio. "Christmas Packaging", a 16-page book reminding readers that now is the time to plan special packages for merchandising products during the coming Christmas shipping season.

General Electric Company, Nela Park Engineering Department, Cleveland, Ohio. A 16-page booklet giving engineering data on fluorescent mazda lamps, operating data, auxiliaries, operating characteristics, color quality, and application considerations.

Morse Chain Company, Ithaca, N. Y. A new and comprehensive catalog of the company's flexible couplings for industrial, automotive, and marine use. Contains complete engineering data, installation and operating information.

Johnson Bronze Company, New Castle, Pa. Catalog L-1 pertaining to the Ledaloyl self-lubricating bronze bearings. Furnishes complete size and price information together with complete installation data.

Wm. E. Hooper & Sons Co., Philadelphia, Pa. Two folders descriptive of **Fire Chief** weather-resistant canvas, a treatment that is said never to wash out. Folders stress long life of canvas and its safety for marine and industrial use.

The Permutit Company, 330 West 42nd St., New York City. Leaflet on the company's expansible strainer head for filter and softener pipe underdrain systems; complete with specifications.

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill. New 1278-page general catalog No. 800, the largest ever issued by the company; contains list prices, dimensions, weights, and engineering data on power transmission machinery, and on equipment for handling, screening, drying, cooling, preparing materials mechanically. Also has 44-page pictorial section devoted to many of the company's products.

Acme Steel Company, 2840 Archer Ave., Chicago, Ill. A 26-page brochure, profusely illustrated, on the company's recommendations for bracing carload freight of uniform and mixed loadings. Also, "Stopping Profit Leaks Beyond the Production Line" a new booklet describing the causes of excessive packing and shipping costs, and methods for eliminating these costs.

S K F Industries, Inc., Philadelphia, Pa. "Better Spinning and Twisting", an illustrated brochure on the company's roller bearing spindle bolsters, ball and roller bearing tension pulleys.

Laminated Shim Co., Inc., 21-86 44th Ave., New York City. Application chart of laminated shims and shim stock, describing solid shims of laminated precision brass which may be peeled for adjustment, without filing, grinding or machining.

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill. Catalog No. 1600 on power transmission units, including self-aligning ball and roller bearing units; unmounted radial-thrust bearings; babbitted bearing units; take-ups; frictions and jaw clutches; gearing; pulleys; shafting, etc. Contains complete design and application data, dimensions, weights, list prices, cross-indexed for reference.

Diehl Mfg. Company, Elizabethport, N. J. "Diehl Textile Motor Bulletin No. 1977", illustrating and describing the various types of Diehl motors, fans, etc., available for textile application, including installation views in many prominent mills.

International Nickel Company, Inc., 67 Wall St., New York City. "Hardness Conversion Table for Nickel Alloy Steels (Revised). Showing S.A.E. standard specifications for nickel alloy steels, and hardness conversion tables including Brinell, Vickers or Firth, Rockwell, and Shore.

Durant Mfg. Company, 1929 N. Buffum St., Milwaukee, Wis. Bulletin on Productimeters, showing improvements and addition to this line of lineal measuring machines for fabrics, with examples of practical methods of solving certain measuring problems encountered in the textile mill to give a more accurate check on production.

Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa. "Heat-Treated Gearing". A 16-page booklet describing the characteristics and advantages of heat-treated hardened gears. It defines the Westinghouse-Nuttall method of treatment, control and quenching; compares properties of different materials; defines heat treatment and case hardening; and illustrates these discussions by tables, charts, and reproductions of photomicrographs.

Union Special Machine Co., 400 N. Franklin St., Chicago, Ill. "Dependable Finishing for Modern Elastic Top Hosiery", discussing the sewing operations on the new style elastic top hosiery and equipment for performing it.

Cleaning Return Lines of Humidifying Systems

The May-June number of *Oakite News Service*, organ of Oakite Products, Inc., 22 Thames Street, New York, presents an interesting article on cleaning the return lines of humidifying systems in textile plants. It points out that using a product of the company, the cleaning is usually done over the week-end, or whenever the plant is shut down.

New Textile Equipment and Materials

U. S. Electrical Motors, Inc., Los Angeles, California

U. S. Electrical Motors, Inc., Los Angeles, California, has developed a new electric remote speed indicator for the company's *Varidrive* motor. It is said to provide an accurate and simple means of selecting the operating speed of the motor from a remote point. This device consists of a simply constructed meter as an indicator mounted in a compact box with the push button for controlling the electric pilot motor that changes the speed. The indicator is neatly calibrated in divisions from 1 to 10; however, scales calibrated to suit the customer's requirements are obtainable. Compact assembly of the indicator and push button control in the same unit facilitates speed adjustment, since by pushing the high or low button the speed is immediately changed and this change registers on the indicator.

◆

Space Thermostats for Cooling

Julien P. Friez & Sons, a division of the Bendix Aviation Corporation, Baltimore, Md., has announced a new line of self-contained space thermostats featuring the hydraulic action principle. Heavy load-carrying capacity without the need of relays is provided and the exposure of the coiled element on top of the case is said to assure great sensitivity. Various types are available to suit all domestic and commercial comfort cooling installations.

◆

Copperspun Rotor for Electric Motors

Fairbanks, Morse & Co., 600 S. Michigan Ave., Chicago, Ill., have announced the development of a new one-piece centrifugally cast copperspun rotor for squirrel-cage motors. The new rotor winding is made of pure copper, the rotor bars and end rings are formed in one piece by pouring molten copper into a mold that encases the punched laminations, stacked and held under pressure. Copper is poured from one end only as the entire assembly is spun at high speed. The opposite end ring is formed by material that has passed through the rotor slots insuring a fluid material during the casting process. As a result of the centrifugal force, it is explained, a tough, dense, ductile copper winding is produced with high strength, full slots and uniform structure and conductivity. The rotor, the company points out, is especially adapted to severe service such as plugging or reversing duty which demands great mechanical strength at abnormal temperatures.

◆

Unbreakable Constant-Level Oiler

Trico Fuse Mfg. Co., Milwaukee, Wis., have announced a new line of visible automatic constant level oilers with unbreakable reservoirs and adjustment oil level features. It is for ring or ball bearings, gear and pump housings, etc. One filling of the reservoir is sufficient to lubricate a bearing for three months or longer. The visible oil supply tells at a glance when re-filling is necessary.

Constant level oiler

Two New Dyestuffs

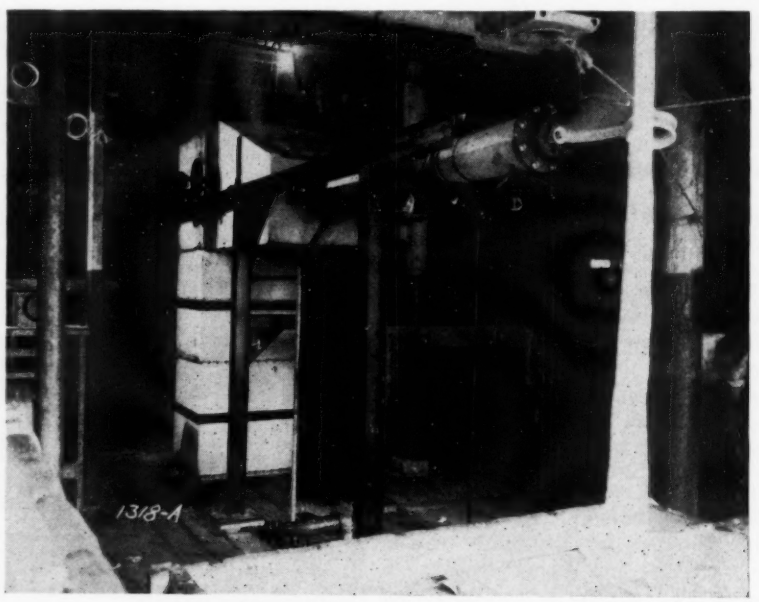
A new vat color, Ponsol Gray RL Paste, has just been announced by E. I. du Pont de Nemours & Co., to produce neutral to reddish shades of gray, depending on the strength of the dyeing. The company says it shows the all-around fastness of the vat color group and is particularly resistant to washing, light, perspiration, hot pressing and cross dyeing; and the reduced vat is very stable. It is particularly offered by the company for shirting shades and as being well-suited to Franklin machine package dyeing and pigment-pad work.

Acetamine Diazo Black BGD is a new acetate fiber color for application in the jig, to produce full, well-penetrated shades of black, particularly on acetate rayon satins and taffetas.

◆

Sewing with an Iron

The B. F. Goodrich Company, Akron, Ohio, announces that "sewing with an iron" is not only possible but practical with fabrics that have been K-treated with a coating of Koroseal. To make a hem on K-treated material—by the heat sealing process—the edge is folded over once, covered with a dry cloth, and pressed with a warm iron. The two surfaces adhere permanently to each other to give a smooth, flat hem which will not ravel, it is pointed out. Designs, borders or initials are applied by placing them on the K-treated fabric and heat-sealing them together by ironing.



● *The above photograph shows in actual plant operation, the continuous peroxide bleaching process of the R. & H. Chemicals department of E. I.* du *Pont* de *Nemours & Co., as described on page 90 of the June issue of* Cotton. *The illustration pictures the cloth in rope form continuously entering the equipment. In this process, the goods are first saturated in rope form with the bleaching solution, passed continuously through a specially designed heating tube into a J-box, where sufficient reaction time is allowed. From here the material is pulled through the usual type of plant washer on the way to the white bins. Only one to five hours are required to pass the goods from desize or sour to white bins.*

Portable Lighting Outfit

General Electric Vapor Lamp Company, Hoboken, N. J., has announced a new portable outfit adaptable for fluorescence, photography, or floodlighting. This is the new Type H-4 outfit

Portable light

which combines the advantages of low operating cost and easy handling. The outfit is a compact, self-contained assembly, accommodating either of the 100-watt H-4 Mercury lamps—the clear bulb or the red purple bulb. The Type H-4 outfit, employing the 100-watt red-purple bulb, becomes a powerful source of near ultra-violet radiation for activating the fluorescence of many materials. It is useful for the scientist and the layman. This is used in the detection of impurities and adulterants in drugs, chemicals, foodstuffs, and is applied generally in the textile industry.

◆

New Method of Card Stripping by Electro-Static Induction

Canusa Corporation, Arlington, N. J., have placed on the market in this country a new and entirely novel device for stripping cards, called the "Static" continuous stripping apparatus which operates on the principle of electro-static induction. The device is mounted on the side framing below the licker-in casing and has no moving parts. Its surface is set about 1/8 or 1/16-inch away from the card cylinder. The nature of the surface plate of the device is a special compound extremely sensitive to electric static induction. The static electricity is generated by the air pressure created by the cylinder together with the friction caused by the fibers. The static electricity accumulates on the "Static" plate which in turn attracts the fibers to prevent them from sinking into the base of the card wire. The device is readily adjusted to the card merely by drilling four holes in the card frame and removing a few grid bars.

The distributors point out that the use of the device reduces considerably the number of card stripping operations; whereas the ordinary card may be stripped at intervals of two to four hours, cards with the new device are stripped only once at intervals ranging from 10 to 60 hours. This, it is pointed out, results in decrease of loss of production while stripping, in variation of sliver, in cost of unproductive work, and in removal of good fiber with the waste; and, it is explained, there is no damage to the card wire since there is no direct contact with the clothing.

Records indicate that a card producing 15 pounds of sliver per hour may be stripped once every 12 to 24 hours when equipped with this device, with longer periods between strippings on lower productions. On staple fiber an average interval of 48 to 60 hours between strippings has been secured.

◆

New Finishing Agent

A new finishing agent has been announced by E. I. DU Pont DE Nemours & Company, Wilmington, Del. It is Avitex VS, a special type of fatty alcohol sulphate finishing agent, designed to give a finish with a smooth surface and fairly full hand, particularly on many types of spun rayon materials and continuous filament rayon fabrics such as flat crepes, twills, serges and taffetas. The producers point out that it imparts an appearance and feel of quality to cloth, improving the brightness of whites on prints; with the closeness of the face of the cloth increased and the oiliness decreased. Avitex VS shows extreme resistance to the calcium and magnesium salts found in hard water, it is claimed, and is stable in both acid and alkaline solutions.

◆

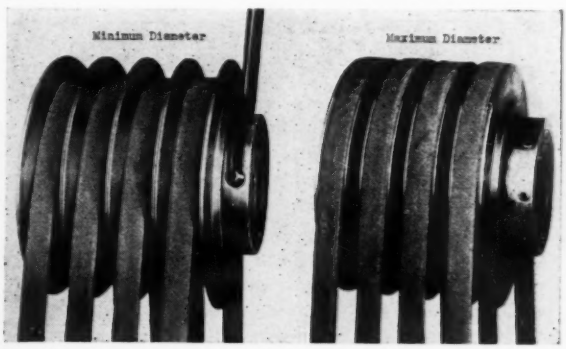
Improved Heddle Frame

Emmons Loom Harness Company, Lawrence, Mass., has developed a new arrangement of brace bar and connections for loom harness which permits the brace bar to be easily removed without disturbing the warp threads or the heddles. The new brace bar is attached to the heddle bar by means of a special locking device, which includes a spring-actuated bolt; sliding this bolt releases the brace bar which can now be removed by a slight movement without interfering with heddles or threads. This arrangement is intended to provide a rigid assembly with no possibility of sway in any direction.

◆

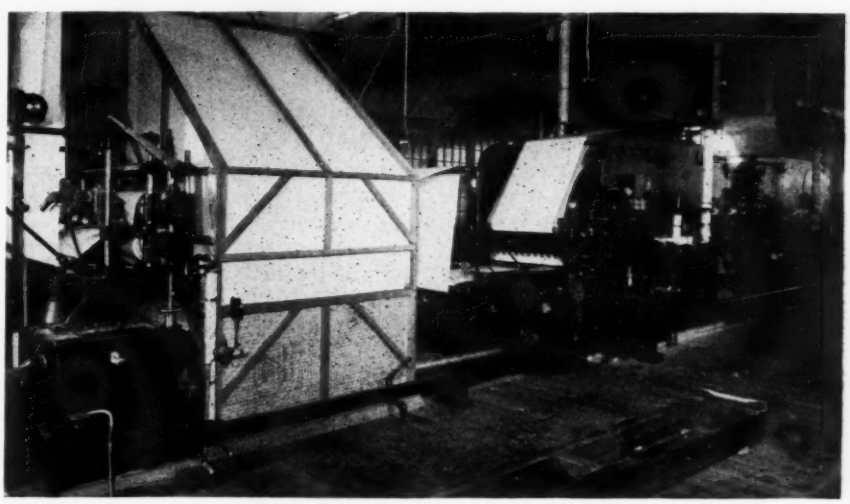
Depts. of Tolhurst Moved

It has been announced by the American Machine and Metals, Inc., that the Tolhurst Centrifugal Division of the company has moved its sales and advertising departments from Rochester and New York City to East Moline, Ill.



Right: Adjustable diameter pulleys for varying the speeds on industrial machinery, developed by American Pulley Co. See page 90 June "Cotton" for details.

Below: The new Reliance V*S drive applied to Morrison Sanforizer. Complete description page 92 June "Cotton".



TIMELY NEWS ITEMS WITH A TEXTILE SLANT . . . .

McCarver Now with Kempton

Jack McCarver has accepted a position with Kempton Parts & Spring Co., Gastonia, N. C., as traveling representative. Mr. McCarver recently resigned his position with Mill Devices Co.

◆

Elliff Joins Stewart-Warner

Joseph C. Elliff, who recently resigned as western manager of the *Saturday Evening Post*, has joined the Stewart-Warner Corporation, 333 N. Michigan Ave., Chicago, in an executive sales capacity, working out of the office of the vice-president and general sales manager.

C. A. Fine, recently sales manager of the company's Alemite retail sales division, has been made Alemite distributor for Southern California, with headquarters in Los Angeles.

◆

Link-Belt Distributor for Twin Disc Friction Clutches

Link-Belt Company, 307 N. Michigan Ave., Chicago, Ill., have been appointed distributor for the Twin Disc Clutch Company, Racine, Wisconsin, for Twin Disc friction clutches and clutch couplings in all industrial fields.

◆

J. G. Smith Receives N. A. C. M. Medal at Clemson College

Joseph Gordon Smith was awarded the National Association of Cotton Manufacturers honor medal given to the student making the highest scholastic record in textiles at Clemson College, S. C. He is from Clearwater, S. C., and has accepted employment at the Columbus (Ga.) plant of the Bibb Mfg. Company.

◆

Textile Fiber from Soy-Bean Developed by Ford Motor Co.

A new synthetic textile fiber, produced from the soy-bean, has been developed by Ford Motor Company laboratories, and exhibited at the Ford Exposition at the New York World's Fair. The new fiber, it is stated, is the first filament ever spun from a protein derived from a vegetable fiber. While not yet in industrial use, the fiber filaments have been woven into cloth, including a necktie made of 35 per cent soy-bean protein fiber mixed with silk and wool. The description of the new product states that, "it compares favorably with other synthetic materials made from animal derivatives. It looks like wool, and since its tensile strength at the present time is about 80 per cent of that of wool, it has only been used in mixture with either silk or wool.

Since 1931, a large amount of the paints used by the company have been made of soy-bean oil and the meal used for such parts as gear shift knobs, accelerator pedals and light switches. The company has more than 20,000 acres of soy-beans under cultivation.

For all of these processess, the bean is crushed into meal and the oil extracted first. In order to derive fibers, the meal is then treated with a saline solution which extracts the protein. Soy-bean meal is rich in protein, with a content as high as 50 per cent.

By a chemical process the protein is made into a viscous solution, which is then passed through very minute openings of a screen-like spinnerette 3/1000-inch in diameter, thence through a coagulating bath, from which it emerges in the form of tiny threads or fibers which are then wound onto a reel ready for bleaching, dyeing and further preparation.

◆

Schwanhausser Vice-President of Worthington Pump

Edwin J. Schwanhausser, who has been with Worthington Pump and Machinery Corporation, Harrison, N. J., since 1915, has become a vice-president of the company. His duties at the Buffalo, N. Y., works have been concerned with the development and manufacture of Diesel and gas engines, air, gas and refrigeration compressors, and as vice-president and works manager he will continue in his present responsibilities.

Mr. Schwanhausser

◆

"Gelatin Sizes Don't Penetrate Viscose Yarns"

One of the important discoveries of the research on the warp sizing of filament viscose rayon, which was conducted jointly for some four years at Massachusetts Institute of Technology by The Textile Foundation and U. S. Institute for Textile Research, was a tannic acid reagent for studying microscopically the distribution of gelatin or glue size mixtures on the filaments or yarn. Until this discovery proved that size mixtures of gelatin or glue bases merely coat the filaments, there was no satisfactory reagent and technique available. The method and technique are made public for the first time in a paper by Dr. W. E. Yelland, director of the research, in the June issue of *Textile Research*, the monthly publication of the Institute.

◆

Increased Grant for Economic Research

To complete the study of "Textile Inventory Policies and Statistical Guides" at the Wharton School of the University of Pennsylvania, The Textile Foundation has increased its grant to $30,000. This is announced in the June issue of *Textile Research* by F. S. Blanchard, chairman of the committee on economic research of the U. S. Institute for Textile Research, which committee suggested the study and acts in an advisory capacity.

◆

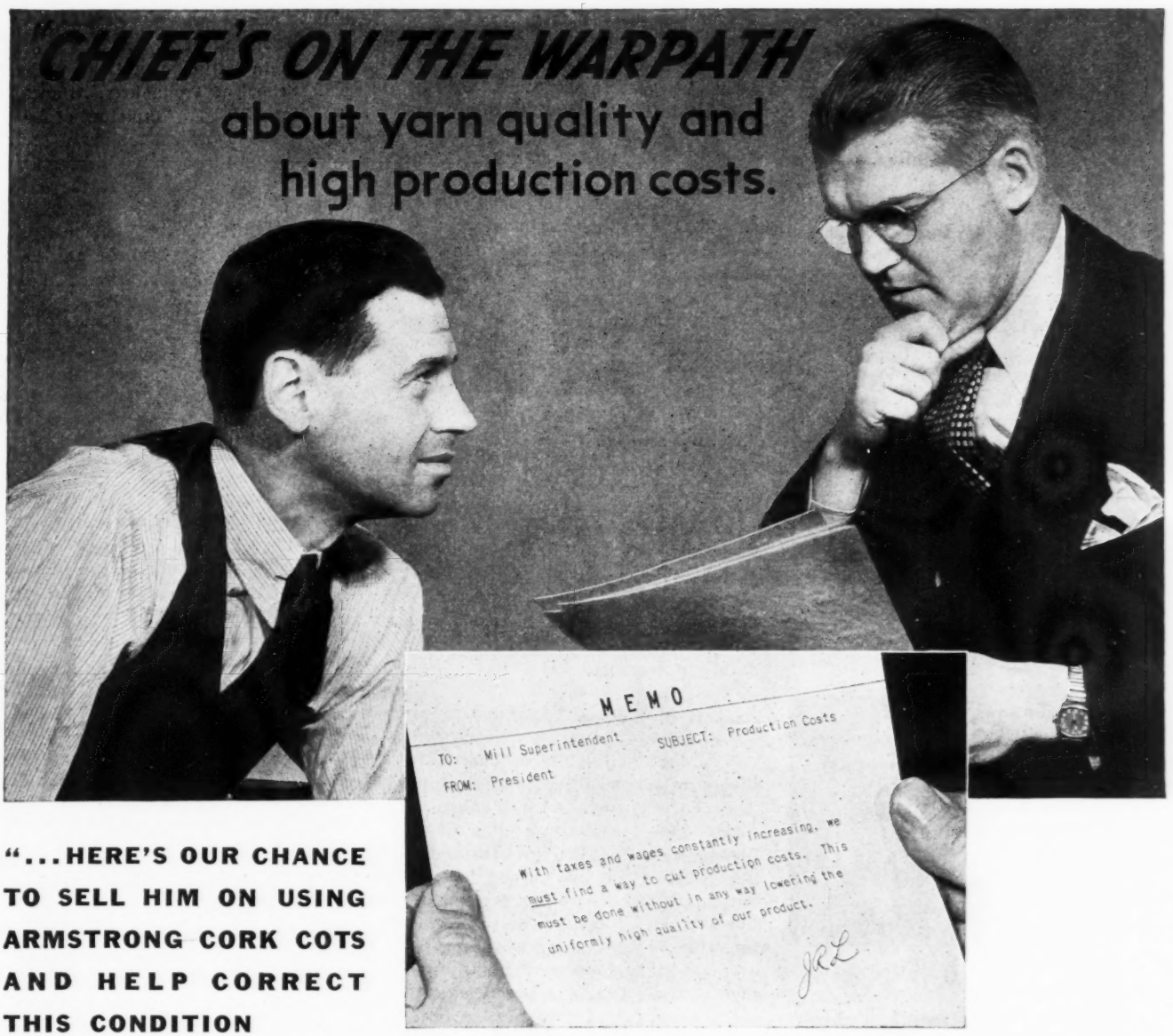
New Departure Celebrates Fiftieth Anniversary

On June 27, New Departure, one of the oldest divisions of General Motors Corporation, and manufacturers of ball bearings at Bristol and Meriden, Conn., celebrated its Fiftieth Anniversary, and combined its annual old-timers' party with a big dinner for foremen and executives. Watches were presented to 30 employees who had completed a quarter century with New Departure this year, and gold service buttons were awarded to 97 others who reached the 20-year service class. Among the honorary guests were A. P. Sloan, Jr., chairman of the board; W. S. Knudsen, president; John Thomas Smith, general counsel, and Paul Garrett, director of public relations.

◆

Ragan Returns to U. S. Bobbin

D. C. Ragan, recently associated with Watson-Williams Mfg. Co., has resigned his position to become affiliated again with the U. S. Bobbin and Shuttle Company, Providence, R. I. Mr. Ragan was a member of this organization prior to 1930. He will cover the state of South Carolina as its sales representative. Matt Ousley, who has represented U. S. Bobbin in South Carolina has transferred his operations to the State of Georgia, where he will serve in a sales capacity. The company is moving its main southern sales and service office from Monticello, Ga., to Greenville, S. C.


"CHIEF'S ON THE WARPATH
about yarn quality and
high production costs.
MEMO
TO: Mill Superintendent SUBJECT: Production Costs
FROM: President
With taxes and wages constantly increasing, we must find a way to cut production costs. This must be done without in any way lowering the uniformly high quality of our product.
JRL

"...HERE'S OUR CHANCE TO SELL HIM ON USING ARMSTRONG CORK COTS AND HELP CORRECT THIS CONDITION

"ANY other time this memo would worry me. But right now it's mighty welcome. Here I've been wondering how I could talk him into making a change-over to cork cots—and I've got the answer. If it's better yarn quality and lower production costs he wants, I'll give them to him—with the help of cork."

More than 7,000,000 active spindles running on Armstrong's Seamless Cork Cots today are the best proof of the efficiency of cork as a roll covering. The high friction coefficient of cork means a stronger, more uniform product. With cork you get fewer top roll laps, less end breakage, and you practically eliminate eyebrow trouble. Result—better running work.

And you save money on the cots themselves, too. Their first cost is no higher than other roll coverings, but your money-saving begins right away with the quicker, cheaper assembly. Then you find that the cork lasts longer—and the cots can be renewed three or four times. You simply rebuff them, and the total cost is only about half a cent a roll.

The net result is this—on the basis of roll covering costs alone, you save at least 50% by using cork.

Find out how *your* mill can improve yarn quality and cut production costs by a change-over to Armstrong's Seamless Cork Cots, the modern roll covering. Let an Armstrong representative show you actual production figures of mills spinning your range of numbers on cork. Or write to Armstrong Cork Co., Industrial Div., Textile Products Section, 923 Arch Street, Lancaster, Pa.

ARMSTRONG'S *Extra Cushion* SEAMLESS CORK COTS

CORK PRODUCTS SINCE 1860

Fargo Heads Calco

F. Miller Fargo, Jr., formerly executive vice-president of the Calco Chemical Company, Inc., Bound Brook, N. J., has been elected president of the company, succeeding Robert C. Jeffcott, who retired April 30, and who founded the company in 1915. Mr. Fargo has been with Calco since its beginning. Calco Chemical Company is a subsidiary of the American Cyanamid Company.

The Beetle Products Division of American Cyanamid Company has announced that the sale of Beetle resins for textile finishing has been transferred to its affiliate, The Calco Chemical Co., Inc., Bound Brook, N. J., with whom correspondence on these products should be directed. Shipments as heretofore will be made from the Beetle Products Division factory at Bound Brook.

◆

Yost Engineering Manager of Westinghouse Lighting Division

I. A. Yost has been made manager of engineering of the lighting division of Westinghouse Electric & Manufacturing Company, which division has its headquarters at Edgewater Park, Cleveland, Ohio. Mr. Yost has been with the company since 1924, when he graduated from Pennsylvania State College. In recent years he has been assistant manager of engineering of the lighting division. W. F. White is manager of this division.

Mr. Yost

◆

New Product at Painesville Plant of Industrial Rayon

First quality rayon yarns for weaving, produced by the new continuous method to insure uniform, direct treatment over the entire length of each thread, made their bow on June 9 under the Spun-Lo Rayon label. This new product follows the successful completion of tests on yarns produced at Industrial Rayon Corporation's new Painesville (Ohio) plant, where initial units went into production in December.

Yarn shipments have been going to mills ever since, but the yarn has not been marketed as first quality pending completion of the "run-in" period on new equipment and tests by major rayon weavers.

In this new process of manufacture, each individual thread is bleached, treated, dried and twisted directly, as it advances as a single thread layer through all the processes from viscose extrusion to the bleached, dried and twisted yarns. Jumbo cones, carrying more than 2½ pounds of yarn in a single unbroken strand are standard throughout the plant. There is no intermediate winding or handling. The larger bobbins, and improved coning methods and equipment, have produced packaged yarns with a minimum of knots.

Three-quarters of the 9,600 continuous spinning ends scheduled for the Painesville plant are in production, and erection of the final group of machines will raise the production to its 12,000,000 pound rated annual capacity.

◆

Crane Promoted by Cutler-Hammer, Inc.

G. S. Crane has been appointed vice-president in charge of sales and engineering of Cutler-Hammer, Inc., Milwaukee, Wis. He has been associated with the company for 29 years, in the engineering and sales departments, and has in recent years been actively in charge of the sales division.

◆

Blankets of Cotton for Texas Goats

According to the Cotton-Textile Institute, ranchers of Texas are covering their angora goats with blankets of cotton duck for the protection of the fleece. The blankets are strapped to the goats, which are turned loose on the range. The covering protects the fleece in such a manner as to increase its value, besides giving a comfortable overcoat to the goats during chilly weather. This is a common practice among sheep raisers of Australia.

The above photograph pictures Miss Jessamine Boyce, daughter of Mr. and Mrs. Erskine Boyce, and Mr. Caldwell Ragan, president of the Ragan Spinning Company, as queen and king of the cotton festival held at Gastonia, N. C., during the week of June 13 through 17. Governor Hoey of North Carolina crowned King Cotton.

Medal Winners at Georgia Tech

At the graduation exercises at the Georgia School of Technology, Atlanta, Ga., on June 5, J. A. Stapleton, of Decatur, Ga., was awarded the medal given annually by the Cotton Manufacturers Association of Georgia to the outstanding graduating student of the A. French Textile School of that institution. W. G. Lee, Jr., of Macon, Ga., received the medal of the National Association of Cotton Manufacturers.

Twenty students were graduated with B. S. T. E. degrees; and seven completed the five-year co-operative course. All graduates of the textile school this year have been placed in mill positions.

◆

Phila. Textile School Graduates Win Prizes

The Philadelphia (Pa.) Textile School held its graduation exercises June 8, with many students finishing in the various options offered at the school. The medal of the National Association of Cotton Manufacturers for general excellence in the three-year course was won by Walter August Qualman, Jr. The award for the highest student rating for the full three years of the chemistry, dyeing and printing course was taken by Howard A. Walter.

◆

New Bedford Textile School Grads Win Medals

The graduation exercises of the New Bedford (Mass.) Textile School were held on June 9. The medal of the National Association of Cotton Manufacturers was awarded to William Gordon Ogden. This medal is awarded by the National Association of Cotton Manufacturers to the student in the general cotton manufacturing course who has shown the greatest proficiency in scholarship during the three-year course. The William E. Hatch Key, which is awarded to the member of the freshman class who ranks the highest in scholarship for the year, was awarded to Isaac Steiner. The Peter Slater medal was won by Leonard Birtwistle. It is awarded to the student graduating from the evening classes in textile design who has attained the highest standing for the two-year course.

◆

Change of Address

Hasler-Tel Company, New York City, manufacturers of precision instruments, have announced their change of address. After more than 15 years with the office at 461 Eighth Avenue, New York City, the company is now removing to the Underwood Building at 30 Vesey Street, New York City.

MAKE A NOTE OF THIS:

the whiter the paint - the better the light conditioning ✓

—and the better the light conditioning—the more you speed up work, cut down spoilage, lower production costs!

That's why you'll find Sherwin-Williams Save-Lite White where modern light conditioning plays its vital role in America's leading plants. Always famous for its lasting whiteness, it's now made whiter than ever before—still greater . . . more lasting . . . in its light reflecting power.

Investigate! Let Sherwin-Williams survey your plant, analyze its painting conditions, recommend the right type of Save-Lite White to meet each need. No obligation. Or write for the free Sherwin-Williams "Plant Conditioning Report." Address The Sherwin-Williams Co., Cleveland, Ohio and all principal cities.

SHERWIN-WILLIAMS SAVE-LITE

THE LIGHT CONDITIONING PAINT

Change of Name

The name of the Warp Twisting-In Machine Company has been changed to Sipp-Eastwood Corporation. The office at 9 East 40th Street, New York City, is closed and all business heretofore carried on by Warp Twisting-In Machine Company is conducted by Sipp-Eastwood Corporation, 39 Keen Street, Paterson, New Jersey.

◆

Sanforizing Story

Because of so many requests for information on just what *Sanforizing* is, the Washable Textiles Bureau, 285 Madison Ave., New York City, has prepared an interesting folder on the subject, entitled *The ABC of Sanforized-Shrunk.*

◆

Fanning Wins Medal Award

Walter Lee Fanning of Shelby, N. C., was awarded the Medal annually given to the most proficient textile student in the graduating class of textile schools. He is a student at N. C. State College, Raleigh. Mr. Fanning has been an outstanding student for all four years at State. He has accepted a position with the Dover group of mills at Shelby.

◆

Worthington News

L. C. Ricketts, who has been associated with the Worthington Pump and Machinery Corporation, Harrison, N. J., for the past 10 years, has been appointed manager of the works at Harrison. W. D. Sizer, who has been with Worthington since 1920, is the new executive engineer in charge of all engineering activities at Harrison. B. R. McBath now assumes full responsibility of engineering in charge of the centrifugal engineering division, succeeding Mr. Sizer. At the Holyoke Works, J. H. Brautigam succeeds W. H. Scherer as manager. Mr. Scherer will devote his entire time to development of manufacturing methods in all of the corporation's plants, as assistant to H. C. Ramsey at Harrison.

◆

New Development in Stackers

The Lewis-Shepard Sales Corporation, 245 Walnut Street, Watertown, Mass., has developed a new type of stacker operating control. Effective immediately, all power-operated stackers will have this new control as standard equipment. The new stacker control is contained in a dust-proof housing of modern, streamlined design, conveniently mounted on both sides of the stacker, which allows the operator to control the machine from either side, which is one of the advantages. The control handles are mounted on ball-bearings directly connected to the controller shaft. Because there are no links or intermediate gears to set up friction, and because of the large radius segment, control is exceptionally easy and little effort is required to operate the machine, according to the company.

In hinged stackers, the control is self-adjusting, as the cable is automatically extended and taken up by a long spring within the controller handle. This eliminates the problem of loosening the hoisting cable when letting down top section.

◆

Amalgamated Chemical Corporation Formed

Announcement has been made that the sales personnel and technical staff, formerly connected with the W. H. & F. Jordan, Jr., Mfg. Co., have formed a new organization known as the Amalgamated Chemical Corporation, with offices and manufacturing plant locatnue, Philadelphia, Pa. Included in the group are Harold B. Dohner, Robert A. Bruce, John T. McGrogan, Frank T. Quinlan, John M. Jester, and others well known to the textile industry.

◆

Book on "Arc Welding in Design, Manufacture and Construction"

The James F. Lincoln Arc Welding Foundation, Box 5728, Cleveland, Ohio, has issued a 1408-page book under the title, *Arc Welding in Design, Manufacture and Construction*, comprising 109 selected studies on the subject, applying to different fields, taken from the papers for which awards were made in the recent $200,000 award program. A wide variety of subjects is covered in the ten sections, Section 9 being devoted to machinery, and including discussion of arc welding in various types of textile plants. Other subject headings are: Automotive, aircraft, railroad, watercraft, structural, furniture and fixtures, commercial welding-automotive repair-welderies, containers, and jigs and fixtures.

The book contains 695 illustrations—photographs, drawings, etc. The price in the United States is $1.50 per copy, and copies may be secured through COTTON'S Book Department.

◆

Briggs & Stratton to Handle Graham Unit

Announcement has been made that Briggs & Stratton Corp., Milwaukee, Wis., are exclusive licensees for the manufacture and sale of the Graham unit, which is now to be called the Briggs & Stratton variable speed transmission. L. A. Graham and A. Madle, formerly vice-president and chief engineer, respectively, of Graham Transmissions, Inc., have joined the company and will continue to be actively associated with the design and sales.

75th Anniversary

This year the American Tool & Machine Company, Hyde Park, Mass., is celebrating its 75th Anniversary. The company was organized in 1864 for the purpose of making and constructing machinist and other tools. Proximity to university laboratories and consulting physicists has been and is an aid in the handling of special problems in

◆

Inventory Profits and Losses

Elimination of so-called inventory profits and losses from taxable income is the purpose of a move now being made by the National Association of Cotton Manufacturers. The Association has prepared a brief for submission to the House Ways and Means Committee urging that any cotton mill wishing to do so be allowed to report income by the "last-in first-out" method. Under the proposed system current costs will be applied to current sales, and the reported income will correspond to the actual manufacturing margin of profit. Fictitious profits or losses resulting from a rise or fall in prices between the time cotton is purchased and the time cloth is sold, which are now included in taxable income, will be eliminated.

Existing treasury regulations require the use of "first-in first-out" presumption with the result that true operating income is distorted by the addition of fluctuations in the value of the inventory maintained throughout the period. That this increase in value is not true realizable income is obvious. Rises in commodity prices are invariably followed by equivalent declines.

Since rises and falls in prices cancel each other out over a period of years, there will be no long-range saving in taxes for mills that always make a profit. But mills that generally lose money in years of declining prices now pay taxes in good years which are not offset, in the absence of carry-over provisions, in such years as 1930 and 1931. Thus, use of the last-in first-out method by lowering taxes in good years and raising them in bad years will materially benefit the marginal mills.

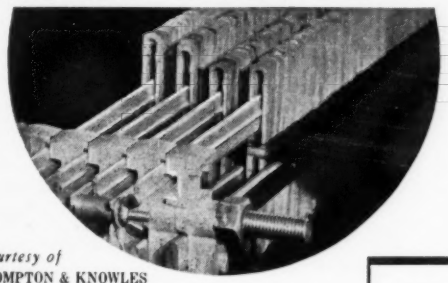
◆

Excerpt of Letter

"We have a market for from 10 to 15 million yards of calicos annually. It is used for bag making and the samples forwarded shows you what the Japanese are selling here at 2½ Pence landed. Have you an American house who will work with us in an effort to capture that business?

"Surely with your American surplus cotton being dumped abroad, there is something to be done."—Colin F. Joyce, 77 York Street, Sydney, Australia, March 28, 1939.

THIS DEVICE IS A FAITHFUL WORKER



Courtesy of
CROMPTON & KNOWLES
LOOM WORKS

But...Why Not Give It *Less To Do!*

AUTOMATIC devices that stop looms the moment a thread breaks are today an integral part of all weaving equipment. But even with these helpful devices, loom-stoppage may still be a serious matter . . . interfering with production and eating into profits.

Caro-Gant

REG. U. S. PAT. OFF.

A HARTEX PRODUCT

. . . the "ORIGINAL 100% ACTIVE" Warp Dressing, provides the elasticity and tensile strength necessary to minimize loom stoppage. Warps sized with CARO-GANT have a maximum breaking strength and the least reduction in elasticity.

• Ask to have our Demonstrator show you, in your own slashing room and without any obligation on your part, just how CARO-GANT decreases loom-stoppage. And that's but one of the advantages — CARO-GANT contains no mineral oil, waxes, or other ingredients that are hard to remove in kier boiling . . . is highly concentrated (so that one barrel goes as far as three barrels of ordinary compound) . . . and is perfectly balanced to work on any weave.

THE HART PRODUCTS CORP.
MANUFACTURING CHEMISTS
1440 BROADWAY • NEW YORK, N. Y.

HART PRODUCTS BASED ON RESEARCH

EVERY POUND OF "CARO-GANT" CONTAINS SIXTEEN OUNCES OF EFFECTIVE SIZING INGREDIENTS

PERSONAL NOTES
about Men You Know

J. F. BRASCH, JR., for the past three years overseer of spinning at the Werthan Bag Company, Nashville, Tenn., has accepted a similar position at Louisville Textiles, Inc., Louisville, Ky. He is a son of J. F. BRASCH, superintendent, Grantville (Ga.) Mills.

GEORGE BATCHELOR, of Greensboro, N. C., formerly representative of a loom reed manufacturer, is now a representative for the Odell Mill Supply Co., of Greensboro, one of the McLeod companies.

HARRY BECK, of Gastonia, N. C., formerly representative of a porcelain manufacturing firm, is now associated with Mill Devices Co., manufacturers of weaver's knotters and representatives of Carter Traveler Co., covering the North Carolina territory.

JOHN T. MERCER, for 39 years with the Arlington Mills, Lawrence, Mass., and for the last 23 years its agent, has retired. He is succeeded by J. S. MERCER, who has been assistant agent for nearly eight years.

V. J. TROTTER, SR., has been elected president of the Monticello (Ark.) Cotton Mills Company, succeeding the late C. T. HARRIS.

LEON A. STANLEY, JR., who completed the four year course at Alabama Polytechnic Institute, Auburn, Ala., in February, is now connected with the Linen Thread Co., Inc., Blue Mountain, Ala.

G. H. MAHAFFEE, of Danville, Va., formerly salesman for the Slip-Not Belting Corporation, is now overseer of carding and spinning at the Alexander Mfg. Company, Forest City, N. C. Mr. Mahaffee is a graduate of N. C. State.

JOHN E. SMITH, formerly with Marshall Field & Co., Spray, N. C., is now assistant superintendent at the Laurens (S. C.) Cotton Mills.

LESTER HOOPER has resigned his position with the Pelzer (S. C.) plant of The Kendall Company to become connected with the Saxon Mills, Spartanburg, S. C.

E. J. POWELL, formerly at the Highland Park Mill No. 2, Rock Hill, S. C., is now overseer of spinning at the American Spinning Company division of Florence Mills, Greenville, S. C.

C. M. PUTNAM, formerly overseer of carding and spinning at the Wallace Mfg. Company, Jonesville, S. C., is now connected with the F. W. Poe Mfg. Company, Greenville, S. C. Mr. Putnam was succeeded at Jonesville by D. W. SHELTON, formerly of the Woodside Cotton Mills Co., Greenville.

ELLIS BOSWELL of Greenwood, S. C., has been promoted to the superintendency of the Courtenay Mfg. Company, Newry, S. C., which was recently acquired by the Abney interests of Greenwood, S. C.

C. R. BARTON, Clemson College graduate in 1929, has resigned his position as assistant professor of weaving and designing at Clemson textile school to accept a position with Industrial Rayon Corporation, New York City. He is succeeded at Clemson by W. B. WILLIAMS, also a Clemson graduate, and formerly overseer of weaving at the Gossett Mills, Anderson, S. C.

D. H. KENNEMUR, formerly with the Union Bleachery, Greenville, S. C., is now affiliated with the Renfrew Bleachery, Travelers Rest, S. C. He is a Clemson College graduate, finishing in 1933.

J. L. KING, formerly overseer of carding, spinning, twisting, and warping at the Alabama Mills, Inc., Clanton, Ala., has been made superintendent of the Central & Catherine Mills of the Avondale Mills, Sylacauga, Ala.

H. H. RANKIN, formerly assistant superintendent of the No. 4 Plant of Cannon Mills Company, Kannapolis, N. C., is now superintendent of the South Fork Maufacturing Company, Belmont, N. C., succeeding W. J. PHARR, resigned.

O. A. MACE, formerly overseer of weaving at the Springstein Plant, Springs Cotton Mills, Chester, S. C., has been promoted and transferred to the Eureka Unit of the same mills, also located at Chester, where he is overseer of weaving of this larger unit's department.

FRANK HOLDEN, New Bedford, Mass., formerly connected with the Kilburn Mill organization and with the New Bedford (Mass.) Textile School, has assumed the position of assistant superintendent of the Brookside Mills, Knoxville, Tenn., of which ARTHUR L. EMERY is general manager and R. T. MCWADE is superintendent.

MARSHALL STONE, for the past five years superintendent and manager of the Pacolet Mfg. Company, New Holland, Ga., has been made a vice-president of the company. He will continue his regular duties and will in addition have charge of the other two Pacolet Mills located in South Carolina.

CARL DUNCAN, superintendent of the Pendleton (S. C.) Plant of Gossett Mills, has been transferred to Anderson, S. C., to become superintendent of the Riverside Mill of this chain of plants.

C. J. ASHMORE, Burlington, N. C., has been made manufacturing superintendent of the Cutter Manufacturing Company, Rock Hill, S. C., and C. E. MCCAW, treasurer of the company, has assumed charge of the office.

HENRY A. TRUSLOW, connected with the Biddeford (Maine) plant of Pepperell Manufacturing Company for several years, has been made assistant superintendent of the Fall River (Mass.) plant of the company.

BARON GROVES, formerly with the Oakboro (N. C.) Cotton Mills, has become superintendent of the Peerless Spinning Corporation, Lowell, N. C.

C. F. SMITH, formerly superintendent of the Elizabeth James Hosiery Mill, Marion, N. C., is now president and manager of the Josephine Mills, which acquired the plant of the Elizabeth James Mill.

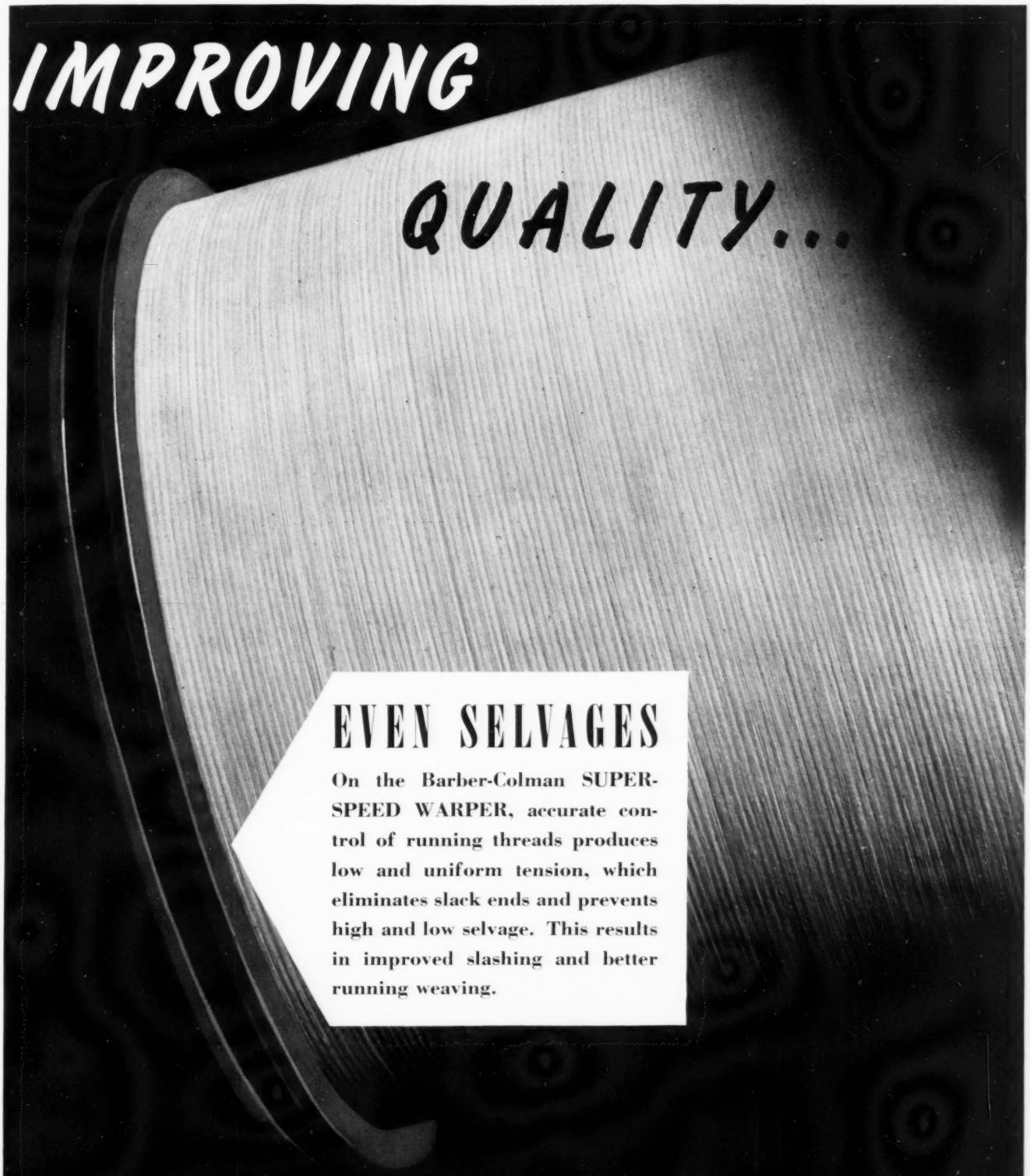
G. P. DEBRULE, who has been overseer of carding at Henrietta Mills, Cherokee Falls, S. C., has become superintendent of carding at the Gayle Plant, Springs Cotton Mills, Chester, S. C.

W. HAROLD SMITH and Benjamin Slom have been transferred from the Cotton Spinning Research Laboratory at Clemson College, S. C., to the Western Regional Cotton Fiber and Spinning Research Laboratory located at the Texas A. & M. College, College Station, Texas.

E. F. ADDISS has resigned as treasurer of Burlington Mills Corporation. No one has been named to fill the vacancy.

Additional personal notes and obituary items will be found in page 120.

IMPROVING QUALITY...



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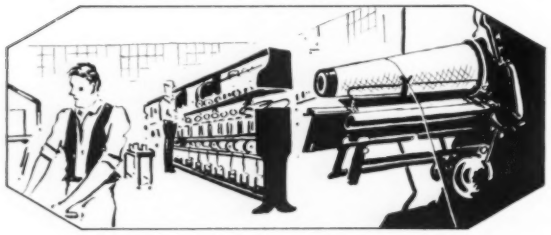

Development

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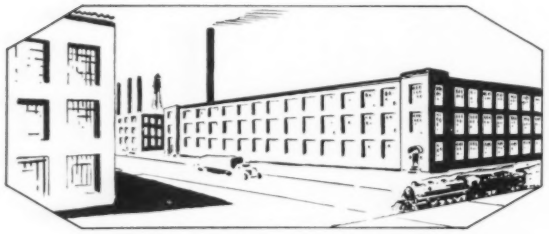

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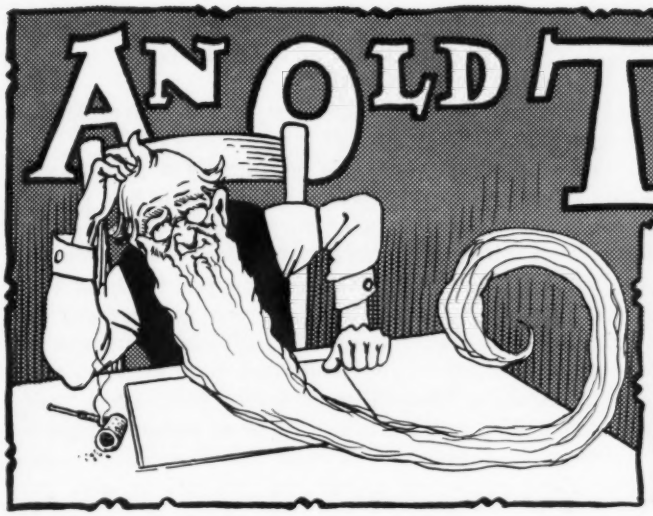

In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of living.

RECIPROCITY

(In which "Old-Timer" gives the word a more pleasing definition.)

(Note: Since this article is written in conversational style, it should be borne in mind that those paragraphs in regular type represent OLD-TIMER'S part of the conversation, and those in *italics* represent JIM'S part.—THE EDITORS.)

Whoa, there, OLD-TIMER, *are you dreaming, or something?*

Not exactly, JIM, just thinking out loud since we came out of that meeting.

Well, that's a pretty big word—not such a big word judging by the number of letters it takes to spell it, but it's darned hard to spell and somewhat of a tongue-twister to pronounce. Now suppose you tell us what it means.

To do that, JIM, I'll have to explain to you what I had in mind when the word came to me while we were in the meeting.

I don't quite follow you, OLD-TIMER; *the meaning of a word is stated in the dictionary, and that's that.*

Not necessarily, JIM. What I am trying to say is that the application of a word oftentimes determines its meaning, depending upon the thought you are trying to bring out.

Then you mean to say that a word can have different meanings, depending upon the way you use it, regardless of the meaning as it is stated in the dictionary?

Exactly, JIM. That's one of the mysteries of the English language, I suppose. In fact, as explained in a previous article, when you can use the exact words and state that a man *is* going to do a certain thing or is *not* going to do a certain thing, it shows conclusively that it is not always the exact dictionary meaning of a word which conveys a thought, but the way it is used, the sentence in which it is used and the accent placed on the word.

You may be talking sense, OLD-TIMER, *but it don't sound like sense to me—Yes is No and No is Yes. How do you get any sense out of that,*

Sure, JIM, it is not as easy to explain what I am trying to say when it must be put in writing, as it is to explain when a person can talk and put the proper accent on the words he wishes to use to bring out his meaning. For example, when I tell you: Mr. White says Mr. Black is an expert manufacturer—which man is the expert?

Mr. Black is, of course—

O. K., JIM, now we will use the exact nine words we used in the foregoing sentence, which made Mr. Black the expert manufacturer, and we will make that sentence say that Mr. White is the expert—

The Heck you will. You are—

Just a minute, JIM, suppose you let me finish, then you can have your say. Now you speak the nine words like I tell you to:

"Mr. White,"—now pause at the comma after White, and then say the next three words: "says Mr. Black," and pause again. Now say the last four words —"is an expert manufacturer." So you see, by saying it this way: Mr. White, says Mr. Black, is an expert manufacturer, we have made Mr. White the expert manufacturer because Mr. Black says he is.

What are you driving at anyway, OLD-TIMER? *You first come out with a big word, right out of a clear sky just like a man talking to himself—that's it you are getting so old you have now taken up the usual pastime of talking to yourself.*

I'll admit we have drifted away somewhat from Reciprocity, JIM, but not so very far after all, because when you say "reciprocity" to the average man he at once begins to think of big business, railroads, international relations, etc., while all I had in mind when the word came to me was its relation and application to textile mill overseers and superintendents and section men and operatives; in fact, all the fellows you and I come in contact with in our business and social life. Therefore, it was necessary to explain to you, JIM, that a word has different meanings, depend-

ing upon its application.

Yeah, white is black, or something; maybe red.

Pick up the dictionary, JIM, and read—

Here it is. I have been looking at it for five minutes, and have decided you are all wet, because here is a word right along in the same meaning as explained here in the dictionary, which not only sounds better and is easier to pronounce, but I am quite sure fits in better with what you had in mind when we came out of that overseers' meeting; now listen to what it says: Reciprocate means to "give and take mutually"—"a mutual giving and returning".

Fine, JIM, I'll agree with you that is not only a better word to use because it is easier to pronounce but it is a more commonly used word and of course everybody knows its meaning.

Do they,

Yes, JIM, any overseer or superintendent knows what reciprocate means. He knows that in mill parlance it means to co-operate; to give and take; that it is not fair to always take and never give, or to always be wanting to take and not willing to give in return; to expect his department to get all the breaks; to expect the superintendent or manager to see everything pertaining to his department the way he sees it.

Yeah, OLD-TIMER, *I suppose you are referring to the way the spinner and myself used to be sore at each other all the time about who would change draft gears when the yarn numbers got heavy or light. Every time the spinner would size-up and find his yarn on the heavy side he expected me to lighten up on my speeders. He would send the sizing sheet down to me and mark in great big letters TOO HEAVY, and then get mad if I didn't change my speeder draft gears whether my roving sized right or not. But when you had us out to the office and explained that with the system we were trying to carry out there would sometimes be several weights of roving in the spinning creels at the same time and we would never be able to keep our yarn numbers even that way you told him it would not be necessary for him to send his report on yarn weighings to the card room any more and you gave me a tolerance on the heavy and light sides of my roving numbers with orders to change if my roving numbers went beyond that tolerance and for the spinner to change if his numbers went beyond his tolerance. In a few weeks' time, or by the time all the old roving had been used up, our numbers began to show more uniformity, and, as you suggested, I weighed my drawing twice a day (four times for awhile) and kept my speeder roving from varying so much. Oh boy! what a joy it was to see those yarn numbers run so evenly, and such a satisfaction not to be worried every day or so with the spinner wanting me to lighten or heavy up on the speeders.*

No, JIM, that is not such a good illustration of co-operation, or reciprocity, because you were *made* to co-operate. The superintendent made you do it; you did not do it of your own accord. But that illustration does show what a wonderful thing it would be if you and the spinner could have gotten together, and with a willingness to reciprocate and co-operate, if each of you had not had that feeling that you wanted to gain an edge on the other fellow; then you both could have been given the credit of full co-operation or reciprocity. You know, JIM, how you feel when you see the spinner coming with a box of tangled roving.

How you mean: I feel?

Well, you don't exactly show that you are pleased to see him.

Pleased to see him? What kind of a guy do you think I am anyway? When he brings a box of bad roving back on me he——

Never mind now, JIM, I know exactly what you are going to say, but, had you ever stopped to think that he, the spinner, is really doing you a big favor by bringing that bad roving to you? Just suppose he never brings any of your bad work back and you rock along thinking everything is lovely until black ends, gouts, doubles and all other kinds of defects begin to show up in the cloth and then the boss has to come into the picture and either run you off or give you such a calling down—I say, had you ever stopped to think that the spinner is really doing you a favor?

Maybe so, OLD-TIMER, *but he doesn't have to be so confounded unpleasant about it, does he?*

Certainly not, JIM, but that is another subject. That is just one of the things about some people; they simply do not know how to say good morning to a person without making him mad. For example, I saw a man at the textile show who has been successful in a business way, but whom I have always disliked. He got on my nerves when he would call on me. I wanted to know whether he made friends with other people or whether it was my fault because I did not like him. Therefore, I mentioned to a mill man, with whom I had lunch, something about this man's business, and without my asking anything about the mill man's like or dislike for him he voluntarily remarked that he did not like for this man to call on him because he didn't like him personally.

I had an opportunity to test the matter further, when I was with two other men, neither of them a superintendent or overseer, but both of them connected with the textile business and familiar with this man's work. They were looking over a report which the manager of a chain of mills had compiled concerning the improvements in machinery exhibited at the Show. When this man's name and business was mentioned I grabbed at the opportunity to get my question in. One of the men said, in substance, "I have to buy his goods because they suit my particular needs, but I dislike the fellow very much."

You will please note that I said in the beginning that this man has been successful, and he has, but any one of course knows that he would have been vastly more successful if he did not have that unfortunate faculty of making himself disliked by his business associates, and, think how much more pleasant life would be for him.

Reciprocity—reciprocate, is one of the simple things in life and in business, one that many men do not profit by.

You say simple, OLD-TIMER?

Of course, JIM; it is simple to understand, just like most other human nature problems are simple. When you were in school, JIM, and gave your desk-mate a piece of your apple, when you had one, or part of your

(Continued on page 90)

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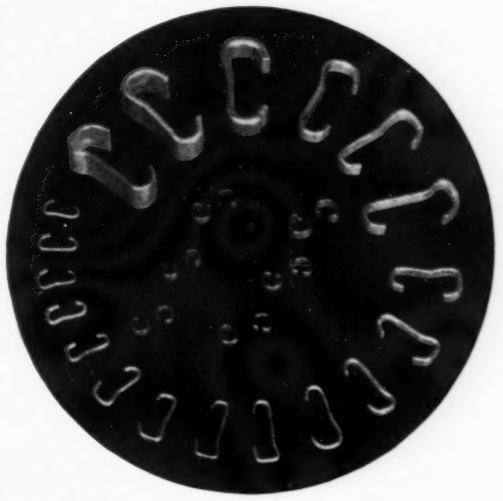

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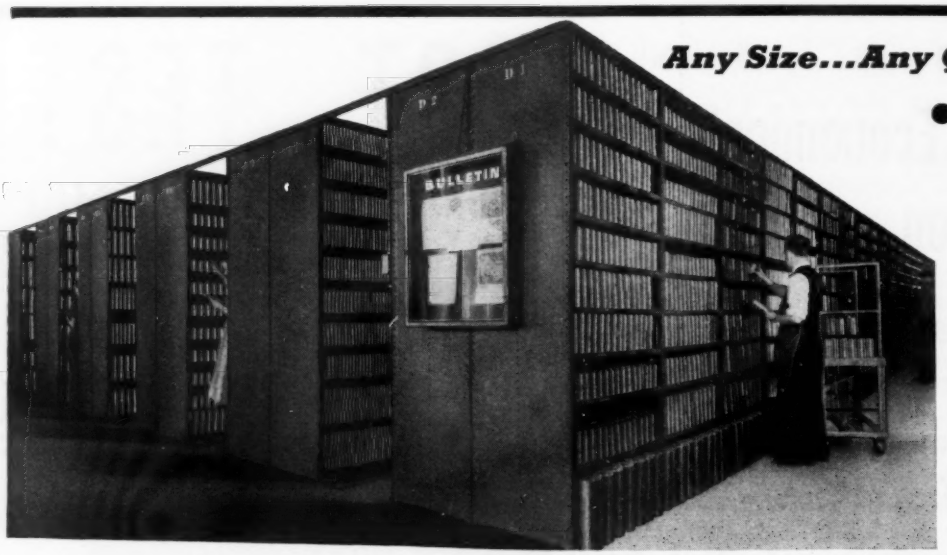

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HOW OTHER MEN MANAGE

The Blending of Textile Fibers

A RECENT REQUEST to the editors of COTTON was for information on mixing of different fibers, such as rayon staple and cotton, or some other fiber. This was passed along to more than one source of information and the replies given by operating men are contained in the following paragraphs.

First Answer: In arriving at the percentage of a mixture in mixed fibers, I know of no better way than to carbonize the stock in the case of animal mixes; and to use Neo-Carmin tests, assisted by a thorough study through a microscope in the case of rayons mixed.

Different processes in the mill remove different proportions of the mixture. In the case of a mixture supposedly containing 50 per cent animal and 50 per cent cotton, the card may take out 70 per cent animal and 30 per cent of the cotton removed, or the breaker may reverse these percentages.

The first place to get some reasonable percentages which will correspond fairly well with the finished yarn is on the finish drawing. The loss in percentage at this point can be found and then it is possible to go back to the beginning and make allowances for this change in the different percentages.

As to the probable percentages to start on in mixing, each mill will have to work this out to meet the individual requirements of equipment and needs.

Second Answer: To mix rayon staple and other fiber, namely, wool shoddy, with cotton, lay the entire blend down on the floor in layers using a proportionate part of each stock of the blend in each layer and making at least six such layers. Then feed the stock through a mixing picker, being sure to take the stock from across the end of the pile beginning at the top and going down to the bottom; do not go across the top and then go back and take from the bottom, for then the value of having the stock in layers is minimized and you do not get a cross-section of the blend going through the mixer all the time.

It may be necessary to put the blend through the picker a second or even a third time but that is a matter of judgment and can only be determined by the person in charge of the blending at the time it is being done and by the condition in which he finds the stock as it comes from the mixer. If some of the stock used in the blend requires oiling, this should be done before it is laid down with the rest of the blend and if the cotton needs cleaning, this should also be done first. This method will insure an even mix from beginning to end.

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

◆ ◆

If it is found necessary to put the mix through the picker more than once, it will be found of value to have the stock as it is coming from the mixer each time spread in layers in the space into which it is being delivered and not just allowed to fall into piles in a haphazard manner. Then it can be fed back into the mixer, taking the stock from across the face of the lot as it lies in the bin in a manner exactly the same as it is taken from pile after it is first laid down and as previously explained. This method is the same as that employed by woolen mills in making their blends. There are other methods of mixing employed now for large and continuous production.

One method employs the use of feeding hoppers with weight pans arranged along each side of a moving apron, the scale of each hopper is so adjusted as to allow the proportional amount of the stock contained in the individual hopper, and necessary to the mix, to be deposited on the moving apron at the right time. The apron then conveys the stock to the mixing machinery. This method may or may not be patented.

Another method, and this one is patented, makes use of the principle of small batch blending. Each stock employed in the blend is successively weighed out into a weigh box, having a dump bottom, and connected to a dial scale on which is marked off by indicators the amount of each stock needed up to the size of the individual batch. As each unit of the whole batch is completed, it is dumped onto a moving apron and conveyed to the picker and the operation is repeated until the whole batch is weighed. By this method, the picking machinery is kept in continuous operation and the cost of laying the blends in layers on the floor is greatly reduced as two operatives can take care of a large production, one bringing the stock and arranging it at the weigh box and the other doing the weighing.

Still another method of blending rayon staple with cotton is where the rayon and cotton are carded separately and deposited in coiler cans. The two fibers are then brought together in the drawing operation by feeding the slivers together in the right proportion.

The Size of the Roving Bobbin and Its Effect on Ends Down in Spinning

EDITOR COTTON:

On page 121 of the February issue of COTTON, "CONTRIBUTOR No. 6894" has asked if the ends down on the spinning frame are greater when the roving bobbin in the creel is from one-quarter to one-half full or from one-third to two-thirds full.

Since reading his question we proceeded to make tests to determine if there is any relation between end-breakage on the spinning frame and the size of the roving bobbin in the creel. Our first tests were not satisfactory due to the method of judging the size of the bobbins, which was done merely by observation. This is hard to judge and classify accurately this way.

We then made a small gauge that the observer could easily use to accurately classify the amount of roving on the bobbin. A consolidation of our tests show the following results:

Size of Roving Bobbin	Empty to ¼ full	¼ to ½	½ to ¾	¾ to Full
Ends Down on Spinning frame	24%	20%	30%	26%

The above figures do not seem to indicate anything very much wrong; however the ends-down from one-half to full are on the high side.

It might be interesting to relate our experience several years ago. At that time we observed that when the bobbins were almost empty there was an excess of roving breaking back (no corresponding ends-down test.) We proceeded to purchase one of the roving testers. The trouble seemed to be that the position of the cone belt, at the beginning of the doff, was wrong. This was easily adjusted and the trouble stopped immediately upon being corrected.

Any variation in the tension that would result in stretching the roving would apparently be reflected in ends-down in the spinning. The position of the cone belt at the beginning will affect the first part of the bobbin. The tension gear and shape of the cones will affect the evenness all the way through.

The best way we know of locating any trouble of this kind is by the use of the roving tester.

Recently two of the large machinery manufacturers have designed new shape cones to improve the evenness of the roving.

We are enclosing charts made on the roving tester showing what we believe to be an average good roving. (See below.)

CONTRIBUTOR No. 6924

◆

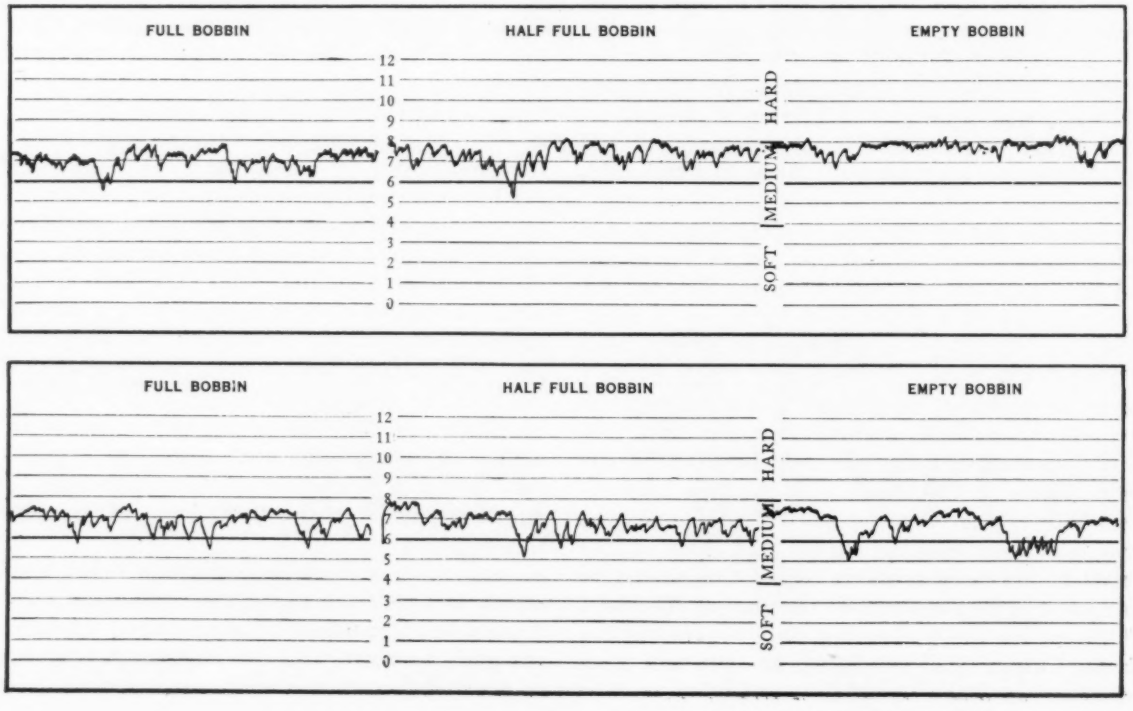
EDITOR COTTON:

This is in answer to the question by "CONTRIBUTOR No. 6894" and his question on ends-down in spinning as related to size of roving bobbin.

There is a slight decrease in the number of ends down on the spinning frame as the roving bobbin decreases in diameter—provided the roving is even throughout the bobbin, the outside roving identical with the inside.

This decrease in ends down is probably due to the decrease in force necessary to keep the roving bobbin turning as the diameter grows smaller. A bobbin of roving four inches in diameter may require a force of 40 grains per inch to keep turning.

Other answers on this subject appeared as follows: March page 88; May page 112 and June page 106.



When the diameter is decreased to two inches, the force required will probably be in the neighborhood of 10 grains per inch. The decrease in strain on the roving will of necessity lessen the stretch a slight amount and eliminate some ends down on the spinning frame.

There may be a good bit of difference in the force required to turn several full bobbins of roving, the condition of skewers, cups, etc., causing this variation, but on all of them the torque necessary to keep the bobbin turning decreases as the diameter grows smaller.

CONTRIBUTOR No. 6916

The Operation of Barber-Colman Warpers

ON PAGE 122 of the February 1939 issue of COTTON there appeared a question by "CONTRIBUTOR No. 6898" regarding the operation of the older style of Barber-Colman warpers, those having the revolving-type cheese. Several men answered this mill's inquiry and the answers are contained herewith, but in order to get the whole story, the original question is reproduced:

EDITOR COTTON:

We would appreciate discussion by qualified readers on the following:

In mills having the older style of Barber-Colman warpers, that is, with the revolving type cheese, we would like to know:

1. With approximately 400 ends per creel, how many creels does one hand put in in one day? Does he do any cleaning? Does he help to pull in the ends?
2. How many warpers are there to the warper tenders? What are the number of stops to the beam? Do the warper tenders doff their own beams?
3. Are the warper tenders and creel hands paid by the hour, or by the beams produced, or in some other way?

We would appreciate it if the answers would also give information as to the number of yarn, length of beam, speed of warper, etc.

CONTRIBUTOR No. 6898

EDITOR COTTON:

In answer to the inquiry of "CONTRIBUTOR No. 6898" with reference to the operation of Barber-Colman warpers, I am listing below the information requested according to our own method:

1. One creeler hand puts in approximately 11 creels per day. He also cleans both the warper and creel with air each time a beam is doffed; he helps pull in the ends.

2. Each warper tender looks after two warpers. The average number of stops per beam is 7.57. Warper tenders do not doff their own beams.

3. Our warp tenders are paid by the warp (3000 yards). The yarn numbers warped are 21s yarn, 25,000 yards per beam; 25s yarn, 31,000 yards per beam; 30s yarn, 36,000 yards per beam. We run 280, 300 and 330 end beams.

The speed of the warper is 500 yards per minute with empty beam and 498 yards per minute full beam.

CONTRIBUTOR No. 6902

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EDITOR COTTON:

With reference to the question asked concerning the operation of Barber-Colman warpers by "CONTRIBUTOR No. 6898" will say that we have three old-style Barber Colman warpers with the revolving type cheese. Our warps contain 505 ends per creel. We use two creeler hands; each hand creels 15 creels per eight hours. The creeler hands do not help with the cleaning or anything else.

Warper tenders run one machine only. The number of stops per warp, 5350 yards long, is seven. Warps are run on balls only (no beams). Warper tenders doff their own machines. The speed of our warpers is 500 yards per minute on No. 9s yarn. All warper tenders and creeler hands are paid by the hour.

CONTRIBUTOR No. 6903

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EDITOR COTTON:

Concerning questions submitted by "CONTRIBUTOR No. 6898" as to the operation of the Barber-Colman warpers, we submit herewith some information which we trust will be of value.

1. With 400 ends per creel one hand can put in 33 creels per 8 hours. The cleaning is done by the warper tender and sweeper.

2. There is an average of 1½ warpers to the warper tenders, about 12 stops to the beam. No, the warper tenders do not doff their own beams; one man doffs and weighs about 30 beams per 8 hours and trucks these to the slasher room and brings back empties, a distance of 500 feet.

3. The warper tenders and creel hands are paid by the hour. Our yarn numbers run from 8s to 26s; length of beam 9000/28000 yards; speed of warpers 500 yards per minute.

The warper tenders pull down their own ends, around 400 ends to the beam, with an average of 6 beams per warper per 8 hours, average ends 378 per beam. Warper tenders are paid by the hour; creel hands also are paid by the hour. The number of stops per beam are 12.

CONTRIBUTOR No. 6904

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EDITOR COTTON:

The question asked by "CONTRIBUTOR No. 6898" has been noted, and I will say that, in regard to creeling on the Barber-Colman warper, a creeler can put in a creel of 420 ends in 12 minutes actual time creeling, working at a normal speed. The creeler brings his yarn from the spooler, takes back the empty starters and does the cleaning and doffing of the warpers in addition to creeling. He is paid by the hour and also participates in the premium on production of warpers.

Warper tenders are paid by the 1000-yard units. They operate four warpers, 420 ends, 475 yards per minute, 40,000 yards per beam, with an average of six stops per beam on 40s/1 combed yarn. The warper tender pulls in all ends and lays the ends in the comb.

CONTRIBUTOR No. 6905

EDITOR COTTON:

Our own method, with reference to warper creelers, in answer to the query of "CONTRIBUTOR No. 6898":

We have two boys for warper creelers whose duty it is to creel warpers, doff beams, weigh beams and carry them to the slasher room, blow off warpers and sweep the floor. They creel approximately 18 beams per day of eight hours. Warper tenders pull in ends.

We have two women warp tenders whose duty it is to pull down ends, lease ends and watch warpers for loose ends and bad work. Stops per thousand yards average about .0015.

Warper tenders and creelers are paid by the hour. The yarn counts are 8s, 11s, 13s, and 20s. Yards per beam—10,000, 13,000, 16,000, 23,000 respectively. Speed of the warpers is approximately 535 y.p.m.

CONTRIBUTOR No. 6906

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EDITOR COTTON:

We are giving you herewith our set-up, in answer to "CONTRIBUTOR No. 6898", pertaining to the operation of the Barber-Colman warpers:

We have two hands known as beam and creeler hands who creel and doff the warpers, blow off the warpers after each doff, dump warp bobbins from the spoolers, look out for and carefully handle empty section beams, weigh the full beams, get the full cheeses from the spoolers and return empty starters to the spoolers. Fill up fire buckets once a week (approximately 15 fire buckets). These two hands are also available for two hours on Saturday, blowing-off the machines, cleaning down overhead, windows, posts, and pipes and taking out the waste. They do not help to pull in the ends. They average creeling 18 warpers (together) every eight hours.

We have one warper tender in charge and responsible for the productive operation of three warpers. The warper tender is assisted by the tailing machine hand in drawing ends in after the warper has been creeled. The stops will average about five per beam. The warper tender does not assist in doffing her own beams.

The warper tender and beam and creeler hands are paid upon an hourly basis.

The number of yarn used is 21½s. The length of the beams is 54 inches, and we put on about 23,000 yards. The speed of the warper is 500 yards per minute.

CONTRIBUTOR No. 6910

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EDITOR COTTON:

Answering "CONTRIBUTOR No. 6898" on his question pertaining to Barber-Colman warpers, we wish to give the following information. With approximately 400 ends per creel, one creel hand puts in 6 creels per day. In this work he does no cleaning but he does help to pull in the ends.

There are 1½ warpers to the warper tender, and the tender does not doff the beam. We have an average of 27 stops to the beam. The tenders and creel hands are paid by the hour.

On 29s rayon the length of yarn on the beam is 40,000 yards and the warper speed is 500 yards per minute, with 304 ends per creel. With the same speeds and yards on 40s cotton the number of ends per creel is 351.

CONTRIBUTOR No. 6911

An Old-Timer Says—

(Continued from page 84)

candy, when you were fortunate enough to have any, didn't that desk-mate or friend with whom you shared your apple or candy give you a part of his when he had any? When someone sends you a Christmas card don't you try to remember to put that person's name on your list to send him a Christmas card next year? Well, that's how simple it is to understand what reciprocate means. Even the dumb animals will reciprocate or respond to kind treatment. Naturally, it is each overseer's first duty to look out for his own department, but a man can do that and at the same time show his loyalty to his firm by doing all he possibly can to help his brother overseers. Stop and think how many times you have been guilty of not passing a word along to one of the other overseers when you knew something which was affecting or going to affect his department.

Wonder why it is that you find less master mechanics than other department heads who are really liked by the other department heads in the mill. Maybe I have just said something that I should not have said; maybe I am wrong in such an assumption, because I have no definite statistics to prove it. But, at any rate, it has been my impression that in most mills the overseers of carding, spinning and weaving, do not relish the idea of having to go to the master mechanic about repairs to their machinery. If OLD-TIMER is wrong in this he is of course very sorry, and without any reflection meant on the master mechanics, because it may be the system in general use that has given him this impression. At any rate, he can say that there is by far too little co-operation between *all* overseers and superintendents, so that statement modifies any possibility of the other remark being any reflection on master mechanics.

We simply are all guilty, fellows, of not co-operating as we should. We should use better judgment, better common sense. If we did not have the feeling in our hearts that we really wanted to co-operate we should have judgment enough to know that from a purely selfish standpoint it is for our own best interest to reciprocate and co-operate. And don't forget the fact which is behind most of the lack of co-operation, and this is the reason why the word "reciprocity" was taken instead of co-operation. The meaning is technically a little different, but we have used that old word "co-operate" so much we hoped to get a new thought into your mind and that new thought is that whatever the words "reciprocity", "reciprocate" or "co-operate" mean does not matter so much as your obligation to start *first*. Don't hang back like you have been doing all your life, waiting for the other fellow to do something for you *before* you do something for him. Give him a piece of your apple, and OLD-TIMER assures you that if you will take this attitude you will soon see the world, your world, change, and a large majority of those fellows who you thought were skunks you will find, to your agreeable surprise, they are pretty darn good fellows after all.

How about trying it on a few just to see if it will work?

Beats per Inch on Pickers

If you know everything about running pickers, don't read this. But if you want information from a man we believe to be an expert on the subject of opening, follow his discussion here . . . . . .

EDITOR COTTON:

Your "CONTRIBUTOR NO. 6791" is correct in his assumption that less and less is being said about beats per inch in pickers, and that the adoption of single process picking has had a good deal to do with this. His question appeared on page 98 of the March COTTON. The installation of complete opening systems has also had a great deal to do with lessening the importance of carefully adjusting the beats per inch.

Up until about 20 years ago, opening and cleaning equipment was virtually unknown in this country. The average cotton mill laid the bales down behind hoppers which fed the cotton to beaters which discharged into either vertical or inclined trunks to the picker room, where another beater section made a breaker lap. Four of these breaker laps were placed on an intermediate picker, and four intermediate laps on a finisher picker. A few mills used bale breakers in a separate opening room and blew the cotton over to bins from which the hopper feeders of the pickers were supplied, instead of feeding these directly from the bales.

With this typical picking system, most of the opening and cleaning was generally done by blade beaters, although Kirschner beaters were commonly used in the finishers. Occasionally, Buckley beaters would be used in the first section of the picker, but in a majority of cases all beaters would be blades except the carding beaters in the finishers.

Obviously, if all of the cleaning had to be done in the pickers it was most important to determine what beater speeds and settings would produce the best results, and the term "beats per inch" was a convenient means of describing the conditions which seemed to give the best cleaning. Even so, the term was always rather hazy because one man would speak of blows per inch with a three-blade beater making 900 r.p.m., while another might be running the same beater 1200 r.p.m., and two-blade beater speeds would run all the way from 1200 r.p.m. to 1600 r.p.m. Furthermore, one man might be running a 12-ounce lap on breaker or intermediate, while another might run a 16-ounce or 20-ounce lap.

There can be no comparison of the effect of beats per inch of a three-blade beater, as compared with a two-blade. A three-blade beater running 900 r.p.m. will give exactly the same number of beats per inch as a two-blade beater running at 1350 r.p.m. However, the cleaning effect is largely determined by the force of impact of the blade on the foreign matter, and since this force is proportional to the square of the speed, in this particular example the two-wing beater would be striking with a force almost exactly two and one-fourth times as great as the three-wing beater. This expression was therefore of little value, except for any particular mill as applied to its special picker setup. For any given organization, it might be said that a certain number of beats per inch on each picker seemed to give the best cleaning, with the least damage to the fiber. By changing the rate of production or the weight of the lap, the number of beats per inch might have to be entirely different to give the same results, and it was practically impossible for anybody to set up standards for the number of beats per inch.

If your contributor will hearken back to some of the animated discussions in textile meetings, he will probably remember that no two people often had the same idea about beats per inch. There used to be a yarn mill which operated its three-blade beaters at around 400 r.p.m. There was another mill which ran carding beaters about 600 r.p.m. At the other extreme, there were mills operating three-blade beaters at 1200 r.p.m. and carding beaters as high as 1350 r.p.m. It is very easy to see that beats per inch was a very indeterminate expression, which might mean anything, or nothing. However, it seemed to be about the only simple way of describing how much beating it took to clean cotton, and its use continued rather general until single process picking came into wide acceptance.

With modern practice, it is universally customary to thoroughly open the cotton and to at least partially clean it before it goes to the pickers. This means that the picker beaters have no opening to do, and that the foreign matter has been loosened up from the lint so that it is comparatively easy to knock out. Since there is no calendering of the cotton in the single process system, there is no such problem as was presented on the intermediate and finisher pickers, where enough beating had to be provided to open up the thickly felted laps sufficiently to drive out the dirt. With better opening, beater speeds were brought down and beating was generally reduced as much as possible. If more cleaning is necessary, it is customary to put in additional cleaning machinery ahead of the pickers, and not to depend on these machines to do a great deal of actual cleaning. The modern tendency on pickers is to run the lowest possible beater speeds which will give decent running laps, and to depend primarily for cleaning on machines particularly designed to take out the different kinds of trash. A picker is particularly suited for taking out seed and motes, and is not efficient for taking out leaf and light trash.

One reason perhaps for the continuing disuse of the criterion of "beats per inch" is the difficulty in actually figuring this with any accuracy in certain types of single process pickers, and the difficulty of comparing it in any single process system with the old standards of the two and three-process days.

One of the earlier types of single process picking had a hopper between the breaker section and the finisher, and in this hopper was a swinging rake which shifted the belt on a pair of cones that drove the feed

rolls of the breaker. To attempt to figure blows per inch on such a machine usually produced nothing except a severe headache, because the speed of the feed rolls might vary 100 per cent over a period of time. The machine might be giving 25 blows per inch on one observation and 50 blows on the next, with anything in between these limits at various other times. On this type of single process picker, the finisher was nothing except an ordinary breaker picker fed with a hopper, and the evener was consequently perpetually running from one end of the cone to the other so that the blows per inch varied so erratically that it was practically impossible to say with certainty what they were.

A variant of the idea of putting a hopper in the middle of the picker is to use a gauge box, into which the breaker discharges and which feeds another breaker which is operated as a finishing picker. With this arrangement, there is no cone constantly varying the speed of the breaker feed rolls, and the beats per inch can be figured with accuracy. The information is of no value, however, after it is determined, because with this type of picker the breaker section stops when the gauge box is full, and the weight of the lap being fed through the breaker is naturally determined by the amount of time which this machine is standing idle. As an example, we may assume that the picker is producing 350 pounds of laps an hour. The breaker section will normally be operating only about 80 per cent of the time, and will therefore have to operate at the rate of 437 pounds an hour to keep up with the finisher. On a very damp day when the cotton is feeding heavily, the breaker may only be operating 65 per cent of the time, and will have to put through cotton at the rate of 538 pounds an hour to supply the 350 pounds of cotton to the finisher. In very dry weather, the breaker may run as much as 90 per cent of the time, and would therefore need to process only 378 pounds of cotton to keep the finisher going. The term "beats per inch" on a production which varies from 378 pounds to 538 pounds means absolutely nothing in terms of cleaning, and on that type of single process picker or on the one with the hopper in the middle, the breaker has nothing whatever to do with making the lap, and the beats per inch would therefore have no effect on the uniformity or appearance of the finished lap, but would only have a bearing on the amount of cleaning.

On other types of single process machines which handle the cotton in lap form throughout the picker, the blows per inch can be calculated, but the information is practically useless after you get it. The cotton going through these machines is so soft and lofty that very little beating is required to lap it, and such dirt as can be knocked out by the beater at all can be removed with the minimum beating required to make a lap. Higher beater speeds generally necessitate closer grid bar settings. Furthermore, practically all single process pickers are set up with the idea of carrying about the same load. In old-fashioned picking equipments it was often customary to put in more machines than were really needed for lapping the cotton in order to get enough beating to clean it. Now that most of the cleaning is generally done in a separate department, the vast majority of the pickers are operated at a production of around 325 to 360 pounds per hour, and blows per inch are more or less automatically taken care of by this rate of production and the commonly accepted satisfactory beater speeds.

On those types of single process picking which preserve the cotton in lap form throughout the process, the beats per inch might have some effect on the final uniformity of the lap because each beating and screening tends to even up the sheet and eliminate thick and thin spots which would be present after the loose cotton coming from the hopper or gauge box had been screened only one time. However, it is doubtful if the beats per inch are as important as the fan draft, because in this variety of single process picker it is customary to slow the final screen section on the breaker to collect a very thick lap, and since the thickness of the lap tends to naturally improve its evenness by packing lint in every available thin spot, it is not necessary to beat the cotton up so fine, but it is most important to have a good fan draft.

Your contributor does not state whether he has single process picking or not, but the chances are that he has. He does not say anything about his opening equipment, or how well the cotton is cleaned. His 3-blade beater is probably operated at about 900 r.p.m. The carding beater is probably running about 800 to 900 r.p.m. At least these will be normal speeds for such a picker. The fan on the finisher section should normally run about 1,000 r.p.m., or as much less than that as will still screen a smooth lap. The fan speed largely depends on the capacity of the dust house; an overloaded dust flue necessitates a higher fan speed. If this is a single process picker with either a hopper or gauge box between the breaker and finisher, the fan speed of the breaker should be about the same as the finisher. If the picker is a single process machine of the continuous type, the breaker fan would have to run about 1400 r.p.m. to 1500 r.p.m. because the sheet of cotton on the screen is so much thicker that it takes a higher fan speed to get the same amount of draft through the grid bars.

It is not desirable to operate a higher fan speed than is actually needed to pull the lint up on the screen evenly, since excessive drafts suck a great deal of light foreign matter back through the grid bars, after the beater has knocked it out.

If your correspondent feels the need of additional cleaning, he should consider some of the well-known types of cleaning equipment which are designed to remove the particular foreign matter which he finds objectionable. Without knowing his exact organization, it would be difficult to advise him on this point.

CONTRIBUTOR No. 6798

Definitions of "Genius"

Genius is only a superior power of seeing.—Ruskin.

I know of no such things as genius; it is nothing but labor and diligence.

There is no labor in life like the genius of energy and industry.—Mitchell.

Genius is infinite painstaking.—Longfellow.

Genius is a superior aptitude to patience.—Buffon.

The Old Card Doctor

In which he prescribes remedies for leaking comb boxes on cards, and gives an experience with drawing frames . . . . . .

EDITOR COTTON:

"The Old Card Doctor" has just returned from a visit to the picker room where he prescribed a few pills for the picker room machinery.* At this time the doctor will continue prescribing for the ailments of unhealthy cards, those that only need a light tonic, such as maintaining the proper operation of the comb box, etc.

Oil is quite expensive and the doctor remembers having gone in mills where the floors are so slippery, from oil dripping from the comb boxes, that it is a wonder that the operatives did not injure themselves in a severe fall. The doctor called the condition to the overseers' attention at one of the mills, who in turn told him that he knew that the comb boxes needed repairing, but that the superintendent was spending all of the supply allowance in the weaving department. (In other words, he was spending a dollar to save a dime.)

Well, anyway, the doctor prescribed a few sheepskin felts or washers to stop the oil leaks; his philosophy was that if you can't get what you need, then do what you need to do with what you have. The doctor also prescribed that a light tin perforated apron be placed beneath the web on each card to prevent the shedding of the selvages, and subsequently singlings. These aprons are worth the small expense that it costs to install them. Also, the calender rolls and gearing should at all times be kept in the best mechanical condition possible, the coiler head kept perfectly clean, and no blowing off or fanning off should be allowed around the pickers or cards. Never should there be any overhead cleaning while the pickers and cards are in operation because then there will be specks and slugs of black oil and dirty waste in the yarn and in the fabric.

Here the old card doctor explained that by placing the comb blade just beneath the feed blade at an angle of about 35 degrees, with the teeth pointing toward the licker-in screen back lip, and the comb blade fastened to the bottom of the feed plate with the edge of the blade projecting so that it may be set to the licker-in by a 7/1000-inch gauge, that by this arrangement a comber has been made back of the card and the stock may be cleaned well. He said this arrangement would never get out of fix and would never probably have to be replaced. There are many things that can be done to improve the quality of the work produced on cards, and any of the little things done to make an improvement in the finished product will be well worth the time.

*Other experiences of "The Old Card Doctor" appeared in the "How Other Men Manage" department in the July 1937, January 1938, and March 1938 issues of COTTON.

The Doctor Speaks of Drawing

The doctor did not claim to have the best system of running drawing, but he did know that the drawing he was running was even, smooth, and had good tensile strength. At first the rolls were set, back to front, with the fourth to the third roll setting at 1½-inch, the third to the second roll 1⅜-inch, and the second to the first 1 5/16-inch; this was running six 60-grain slivers into one head. By this arrangement there was uneven slubber roving, uneven intermediate roving, and uneven fine roving. The old doctor went to the drawing frame and broke back the feed to five ends and the work began to show a decided improvement, with the tensile strength showing a gain of 10 per cent or more. He then went back and broke out another end, leaving only four, and the system was allowed to run for awhile just to see if this was what really made the improvement. After it had run this way for 8 or 10 months the settings were moved up 1/16-inch closer on all of the roll settings. By further experimenting it was found that the exact settings for certain staples being run could be made. Tests were then made on 15/16-inch staple and on ⅞-inch staple to find the best setting and the best weight of sliver to run. The tests further showed that the character of staples has a good bit to do with whether or not evenness, smoothness, and good tensile strength are secured.

The speed of the drawing frame rolls is important because some staples will stand a higher speed of the steel rolls than other staples of the same length, but of a different character. A thorough study of the character of the various staples of cotton will prove to be an asset to a carder.

One day while the old card doctor was visiting in another mill, he was talking with the overseer of spinning when the second hand came in and declared that the spinning had blown up in the middle. The doctor was invited to go out with the spinner to see what had happened, and from an analysis of the trouble, it was found that the character of the fiber and the treatment the fiber had received before it reached the spinning room was the basis of the whole trouble.

Cleaning is also important on the drawing frames. Both top and bottom roller flutes should be kept free of anything that tends to clog them, and all loose waste should be wiped off, not fanned off. Drawing cans should also be wiped off so that no oily waste will get into the work, and at the same time the cans will look better.

(The "Old Card Doctor" will return soon with some more prescriptions and pills for cotton card room machinery.)

Energy

The wise and active conquer difficulties by daring to attempt them. Sloth and folly shiver and shrink at sight of toil and hazard, and make the impossibility they fear.—Rowe.

Energy will do anything that can be done in this world; and no talents, no circumstances, no opportunities will make a two-legged animal a man without it. —Goethe.

The Jacquard Loom

(Continued from page 62)

with a small shed, very great difficulty will be experienced in turning the cylinder at all. To use a large shed because of this, doesn't solve the difficulty, it only shelves it. The real solution is found in the second method, in which there is no connection between the shedding mechanism and the cylinder, both being of entirely independent action. On its outward travel the cylinder should be at least a full half-inch clear of the needle points before any turning action takes place. When it is turned, and has attained its equilibrium, the travel is not completed. It must continue until full allowance has been made for vibration and lost motion due to worn parts. This can best be ascertained if the loom is turned slowly by hand, and the turning and travel of the cylinder closely observed. This is one way to minimize the disadvantage of the double-cylinder machine, where one cylinder at times gets ahead of the other, causing the pattern-cards to get out of their consecutive order. At the other extreme where the cylinder is pressed against the needles, and the hooks are held clear of the knives, it should be possible on taking hold of the cylinder with one hand to rock it slightly. If this is not possible, unnecessary force is being used, which will soon break needles that through use have become worn at the cranks. In addition, care should be taken to see that the hooks are not lying hard against the knives. They should touch the knives very lightly when the knife is just a little below the heads. In a Jacquard where the eyes or cranks of the needles have become worn, full control of the hooks becomes somewhat of a problem. Some will work into the knives, others will miss, and again others will vibrate under the knives and get bent. To overcome this the cylinder may be timed so that immediately the top of the knife has cleared the heads of the hooks, they can revert to their original position. Such latitude of operation is one of the advantages, resulting from independent action of the cylinder, as pointed out previously. In renewing or adjusting the cylinder hammers and springs, care should be taken to keep the cylinder square to the needle-plate, but more particularly to the needles. This may be tested by turning the loom slowly by hand until the cylinder is near the needle-plate, and placing one limb of a small try-square along the face of the needles, and bringing the other slowly down on each cylinder square in turn, when any variation can easily be seen. Even the small cylinder pegs, however unimportant they may seem, are deserving of notice. For while they serve to guide the pattern-cards in their circuit of the cylinder, they also are intended to keep each succeeding card correctly in position so that that part of the design may be transferred to the needles. Of these there are two kinds in use. One, a solid brass peg intended for use only on four row cylinders, but for some unexplained reason much used in the trade. The other also of brass, is a disappearing peg, having the advantage of adjustment in length and size, both for new cards and old. It not infrequently happens that from various causes, such as a part coming loose, excessive strain, or sudden jars from the loom, the cylinder falls below its correct working level, causing the filling to skip or float over the warp in the cloth. Worn cards will also have this effect.

To ascertain just how far the cylinder has fallen, red lead or grease is daubed on the face of the needles, and a few picks woven; the resultant marks of the needles on the card show the new level. Another method, particularly effective with worn cards, is to turn the loom until the cylinder is almost touching the needles, and setting it so that the needles will strike near the top of the holes. Their height can be seen by looking along the rows from either end.

(To be continued)

The Economics of Labor Organization

(Continued from page 42)

increased price, whether the excessive profit goes into the pocket of a banker, a tool-maker, or a loom-fixer, and it seems just as wrong for labor unions to conspire to jack up prices as for a bunch of gentlemen in top hats and frock coats to do the same thing. The man who gets stuck with the increased price is not particularly fussy about who benefits by the increase.

If all the grocers in town form an association, decide that there isn't a decent living in the business of running grocery stores, and arbitrarily agree to raise prices to help business, this is a crime and punishable by law. If all the grocery clerks in the same stores decide that wages are not high enough and form an association through which they can forcibly increase their wages—and thereby increase the cost of groceries by exactly the same amount that they would have been increased by the illegal grocers' association—this seems to be perfectly legal, and many people would say desirable. The grocer has to do the best he can under competitive conditions, and if he goes broke and loses everything he has because he had to sell his groceries at competitive prices, nobody sympathizes with him much. At the same time, plenty of people will argue that the grocery clerks should not have to work under a competitive system of hiring, but that they should be arbitrarily permitted to set their own wages, although the grocer should not be arbitrarily permitted to set his own prices. Prices must be determined by competition, but wages mustn't. But—wages determine prices, so what?

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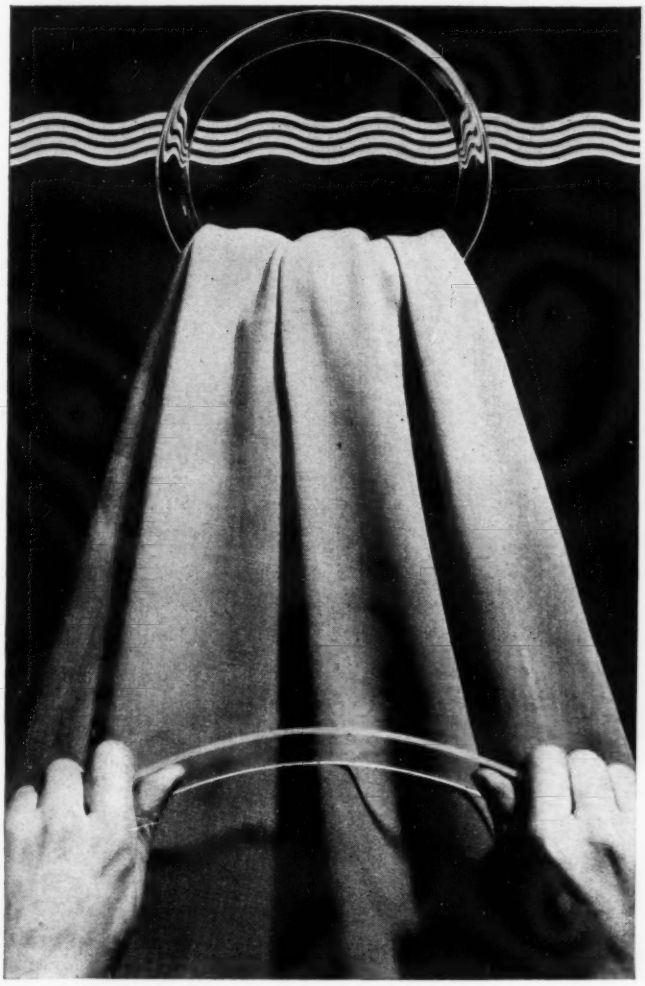
Baylies with New England Power

LINCOLN BAYLIES has become associated with the New England Power Association. He is a former president of the National Association of Cotton Manufacturers, was with the Nashua Manufacturing Company for many years, and at one time was assistant treasurer of the Naumkeag Steam Cotton Company.



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are never brittle . . .

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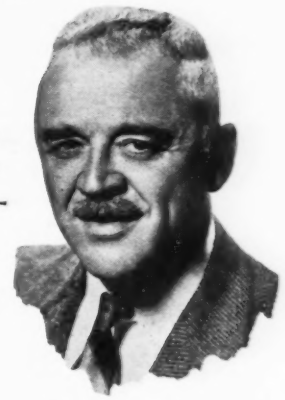
"I haven't any actual figures, but I don't think our drying operation is costing us very much."

"Our drying machinery is rather old, but I think it's doing a pretty good job."

"Our dryer is fairly new and I don't hear any complaints, so it must be all right."



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214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56-page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog, attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental-Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

223. Alloyed Iron in Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

228. Solutions for Your Problems—20-page illustrated booklet containing valuable information on the scouring and processing of wool and other fibres. Detergent Products Corp., Atlanta, Ga.

233. Catalog No. 22—an attractive illustrated catalog describing in detail the Shamrock shipping containers and the new canvas trucks for textile use. Meese, Inc., Madison, Ind.

234. They Stay Brighter Longer—This interesting illustrated booklet containing facts about Mazda lamps will be sent you free on request. General Electric Company, Dept. 166, Nela Park, Cleveland, Ohio.

238. Glorified Light—A 32-page book illustrative of the vital part proper painting plays in scientific lighting and in the reduction of maintenance and production costs. Pittsburgh Plate Glass Co., Pittsburgh, Pa.

240. The New Proctor Automatic Yarn Dryer—6 page illustrated folder describing the new Proctor automatic yarn dryer which has the exclusive new Proctor traveling skein protector. Proctor & Schwartz, Inc., Philadelphia, Pa.

253. Brown Air-O-Line Controllers — This booklet will prove invaluable to the men in charge of dyeing, finishing and slashing, as well as the textile executive. 32 illustrated pages describing the various Brown Controllers. The Brown Instrument Co., Philadelphia, Pa.

258. Automatic Overhead Cleaner for Spinning, Winding, Warping and Twisting—24 page booklet showing the new American MonoRail automatic cleaner in operation on MonoRail track circuit over Spinning, Warping, Winding, Twisting, etc. This cleaner incorporates a new scientifically designed blower producing a whirling column of air directed and controlled so that it prevents accumulation of fly with no harm to roving. The American MonoRail Company, Cleveland, Ohio.

259. Cotton Conditioning with Texspray Compound—18-page booklet describing the Texspray method of cotton conditioning. It has been proven that this method will save money, increase production, increase flexibility of fiber, eliminate static and reduce fly and dust. The Texas Company, New York, N. Y.

260. Lubrication—This attractive booklet contains valuable and interesting articles on loom lubrication and also on spinning design and the function of spindle oils. The Texas Company, New York, N. Y.

261. The Brown Moist-O-Graph—16 page booklet describing the Brown Moist-O-Graph which measures, records and controls the moisture content of cotton warp yarns. The Brown Instrument Company, Philadelphia, Pa.

263. Gastonia Brushes—New catalog and price list showing the complete line of brushes for the textile mill. Gastonia Brush Co., Gastonia, N. C.

269. Stainless Steel Equipment for the Dyeing and Textile Industry—Attractive four-page folder describing the Blickman line of dyeing equipment. S. Blickman, Inc., Weehawken, N. J.

271. The New American Adjustable Diameter Wedgebelt Pulleys—illustrated leaflet describing the American adjustable diameter sheaves designed to produce the best performance in all types of V-belt driven textile machinery. American Pulley Co., Philadelphia, Pa.

272. Where to Buy Monel Metal Textile Equipment—Attractive booklet which lists the names and addresses of experienced fabricators of Monel Metal equipment for the textile mill. The International Nickel Company, Inc., 67 Wall St., New York, N. Y.

277. Bulldog Rubber Tension Roll Covering—attractive four-page folder describing the new scientifically correct product designed for taking off all synthetic fabrics, natural silks and fine cotton goods. Boston Woven Hose & Rubber Company, Cambridge, Mass.

278. Textile Testing Laboratories—a 10-page illustrated booklet describing a modern textile testing laboratory and pointing out the necessity for laboratory air conditioning systems. Ask for bulletin 136. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, North Carolina.

279. When Cleaning's Automatic, a Spinner's Free to Spin—a 10-page illustrated booklet dealing with the Parks automatic traveling cleaner. Ask for bulletin 1036. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

284. Morton Nickel Iron Quick Opening Handle Gate Valve—Illustrated leaflet describing the new Morton Valve for dyeing machines, pipe lines, steam and water lines, boiler blower valves and throttle valves. Morton Machine Works, Columbus, Georgia.

286. Tricon W-30—Study of wetting agents and their activity with recommendations for textile processing. Rohm & Haas Co., Philadelphia, Pa.

287. New American Pulley Motor Base Catalog—an attractive new illustrated catalog describing in detail construction and application of new tension control motor base. Includes data comparing performance of drives with and without tension control motor base and applications are shown for both flat and V-belt drives. American Pulley Co., Philadelphia, Pa.

289. Caustic Soda Bulletin—a data and reference book designed for the user of caustic soda. Complete with charts, drafts and formulas. Pennsylvania Salt Mfg. Co., Philadelphia, Pa., who also manufactures Hydrogen Peroxide.

290. Hyatt Roller Bearings on Textile Machinery of All Kinds—34 page booklet which describes and illustrates how Hyatt bearings are being applied to textile machinery. Hyatt Bearings Division, Newark, New Jersey.

291. Wolf Products for the Textile Trade—Illustrated booklet describing the Wolf line of chemicals for the printing, dyeing, sizing and finishing of all textile fabrics. Jacques Wolf & Co., Passaic, N. J.

295. Fence Facts—A new booklet illustrating and describing chain link fence in a variety of styles and four different metals for every type of fencing installation. Also wrought iron fence in various beautiful styles. A concise handling of information for those wanting facts about fence. Page Fence Association, Bridgeport, Conn.

298. Full Fashioned Hosiery Manufacture — Illustrated folder giving the history of full-fashioned knitting and describing in detail the different processes in present day manufacturing and the application of Gulf lubricants to the various machinery. Gulf Oil Corporation, Pittsburgh, Pa.

297. Lunkenheimer List Price Schedule R-1—new 44 page catalog covering the entire line of valves, boiler mountings and lubricating devices manufactured by the Lunkenheimer Company. The Lunkenheimer Company, Cincinnati, Ohio.

299. The New International Time Recorder—information on the new automatic time recorder which gives complete wage and hour records. International Business Machines Corp., New York, N. Y.

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306. Waterproof with Sco-Co—Information on the advantages of using Sco-Co industrial finishes and paints in the textile industry. Southport Paint Co., Inc., Savannah, Ga.

307. Lane Canvas Baskets—16 page illustrated booklet describing the Lane line of canvas baskets for textile use. W. T. Lane & Brothers, Poughkeepsie, N. Y.

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310. Replacement Parts for Knitting Machines—attractive illustrated folder describing the Thomas & Skinner line of replacement parts for all types of knitting machines. Thomas & Skinner Steel Products Co., Indianapolis, Ind.

311. The Romance of Prairie Gold—attractive illustrated book which tells the story of corn and the uses of corn products in industry. Corn Products Sales Co., New York, N. Y.

312. Cork—The Modern Roll Covering—attractive booklet outlining the uses and advantages of cork for textile roll covering. Armstrong Cork Products Co., Industrial Division, Textile Products Section, Lancaster, Pa.

313. Detergent Wall Card—valuable and handy wall card listing pH strengths in both acid and alkali solutions. Chemists and dyers will find this chart invaluable in their everyday work. Detergent Products Corp., Atlanta, Ga.

314. Winding Production Chart—this useful production chart can be used for any style of winder. Also included are instructions for figuring yarn takeup speeds. Universal Winding Co., Providence, Rhode Island.

315. How Handling Problems Have Been Solved—a 56-page booklet presenting in pictorial form many solutions to industrial handling problems and showing how they reduce costs, save labor, eliminate storage and provide free movement of stock between processes. American MonoRail Company, 13106 Athens Ave., Cleveland, Ohio.

316. Ditto Payroll Record System—this special book has shown hundreds of textile men how to speed and simplify payroll routines. It shows how to save. Ditto, Inc., Chicago, Ill.

317. Circular Knitting Machines—a fifty-two page illustrated booklet containing valuable information on the manufacture of transfer top hosiery. Includes illustrations of rib knitting principles, yarn changers, selvage welt, loose course and methods of laying in Lastex. Sent free on request to Fidelity Machine Company, 3908 Frankford Ave., Philadelphia, Pa.

318. It's the Film—attractive folder describing and giving specifications for Lubriplate, the lubricant possessing features not found in conventional lubricants. Lubriplate Division, Fiske Bros. Refining Company, Newark, N. J.

319. Lubriplate—the modern textile machinery lubricant—attractive illustrated folder giving recommendations for textile machinery lubrication. Lubriplate is the new lubricant which forms a film on shafts, bearings, gear teeth, etc., which prevents wear, corrosion and contamination due to products of wear. Lubriplate Division, Fiske Bros. Refining Company, Newark, N. J.

320. The Control of Friction—four-page folder which shows why Lubriplate controls friction on textile machinery. Lubriplate Division, Fiske Bros. Refining Co., Newark, N. J.

321. Wooden Tanks for Many Purposes—attractive catalog containing much helpful data relative to general design and construction of wooden tanks for textile use. Also contains an interesting tabulation of experiments with different woods available for tank purposes. Hauser-Stander Tank Co., Cincinnati, Ohio.

322. The Application of Soaps and Soap Products to Textile Processing—40-page illustrated booklet covering the principal operations in textile processing. Special notes and suggestions are given for those operations requiring soaps or soap products. Colgate-Palmolive-Peet Company, 105 Hudson St., Jersey City, N. J.

323. Textile Processing with Artic Syntex A and T—50-page illustrated booklet describing the properties of these new materials and giving tentative or suggested formulas for a number of applications in textile processing. Colgate-Palmolive-Peet Co., Jersey City, New Jersey.

325. Protection for Your Humidifier Motors—literature describing the Walker fusedron which completely eliminates rewinding your humidifier motors. Walker Electrical Co., Atlanta, Ga.

326. A Payroll Method that is Saving Time and Money for a prominent Textile Mill—Illustrated folder complete with actual records describing the Ditto payroll method installed for a prominent textile mill. Ditto, Inc., Chicago, Ill.

327. Sanforizing Machinery—illustrated booklet describing the sanforizing machinery offered by the Textile Finishing Machinery Co., Providence, R. I.

328. SKF Ball and Roller Bearing Transmission Appliances—84 pages, 100 illustrations, descriptions and dimensions of universal, unit, split and roller bearing pillow blocks, ball bearing drop and post hangers, take-up boxes. Suggestions and dimensional and load data for bearings also given. SKF Industries, Inc., Philadelphia, Pa.

330. Tools for the Textile Trade—a twelve-page booklet illustrating and describing specially selected tools for all textile mill departments—Loom Fixers, Spinning Room Fixers, etc. Snap-On Tools Corporation, Kenosha, Wisc.

CONTINUED ON PAGE 98

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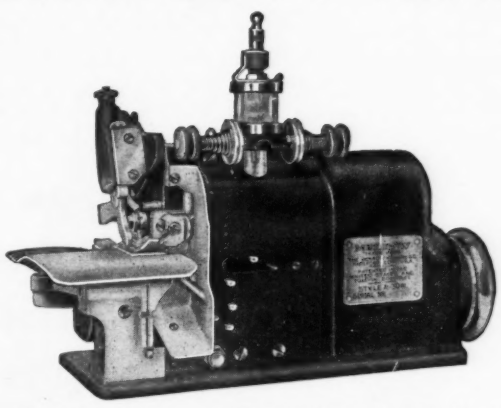

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Continued from Page 96

331. Unbrako Self-Locking Hollow Set Screw—Bulletin Form 532 includes illustrations and descriptive matter of this latest improvement in socket set screws. This bulletin also features the complete line of "Unbrako" Socket Screws. Standard Pressed Steel Co., Jenkintown, Pa.

332. Hard Maple Flooring—an 8½ x 11-inch folder featuring a close-up of Northern Hard Maple Flooring and specimen pieces to show grades, prepared for the convenience of architects, builders and others when considering flooring grade requirements. Maple Flooring Mfrs. Assn., 332 South Michigan Ave., Chicago, Ill.

333. Fafnir Ball Bearings for the Textile Industry—Outlining the applications and advantages of ball bearings on textile machinery. Fafnir Bearing Co., New Britain, Conn.

334. Precision Winding for Silk and Rayon Yarns—Describes the new No. 50 Leesona Winder and all attachments that are used for silk hosiery threads and rayon yarns. Universal Winding Co., P. O. Box 1605, Providence, R. I.

335. Casters and Wheels—192 pages, describing casters and wheels suitable for all types of industrial application. Every mechanical engineer and purchasing agent should have this. Darnell Corp., Ltd., P. O. Box 4027-N, Station B, Long Beach, Calif.

337. Sizing and Finishing—A pamphlet which will give the mill man an understanding of starch properties which will lead to greater efficiency in sizing and finishing. Stein, Hall & Co., Inc., New York City.

338. Thickening Materials for Textile Printing—Describing materials and methods employed in preparation of color thickening so that it may be properly and economically transferred to cloth through the medium of the printing machine. Stein, Hall & Co., Inc., New York City.

339. Diehl Textile Motors—a 12-page booklet illustrating various types of installations on textile machinery and equipment and describing the different types of Diehl Motors, as well as Diehl Grinders and Fans. Address Textile Dept., P. N. Thorpe & Co., 267- 5th Ave., New York City.

340. Notes on Cotton Warp Sizing—a 45-page handbook giving valuable data on the purposes and properties of various sizing products, their uses and preparation, with much information on the operation of slashing equipment. Will help solve many sizing problems. Address The Hart Products Corp., 1440 Broadway, New York City.

341. Chapman Transmission Equipment—Catalog No. 37 describing and illustrating the complete line of Chapman hangers, hanger boxes, pillow blocks, ball bearings and other transmission equipment. Chapman Transmission Corp., Buffalo, N. Y.

342. Human Beings at Work Consume Energy Constantly—Attractive illustrated booklet describing the new Ideal food and drink conveyor and outlining the advantages of its use in the modern textile plant. Swartzbaugh Manufacturing Co., Toledo, Ohio.

343. SKF Better Spinning and Twisting—16-page illustrated catalog containing technical information relating to construction and performance of SKF roller bearing spindles, tension pulleys, guide and idler pulleys and miscellaneous pulley and bearing applications. Distributed by all leading textile machinery manufacturers and SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

344. Artday Fluorescent Lamps—Attractive folder describing the Macbeth fluorescent industrial fixtures for better seeing, inspection, color grading and color merchandising. Includes complete detail as to sizes and uses in industrial plants. Macbeth Daylighting Corp., New York, N. Y.

345. The New Air-Cooled Color Matching Skylight—illustrated leaflet describing the new air-cooled Macbeth BKX83 color matching skylight which is the last word in color matching and color identification equipment. Macbeth Daylighting Corp., New York, New York.

346. Dependable Finishing for Modern Elastic Top Hosiery—describing and illustrating equipment for basting and attaching insert elastic, attaching wide or welt elastic and seaming elastic in women's hosiery. Union Special Machine Company, 400 North Franklin St., Chicago, Ill.

347. Rhoplex Resins—Attractive folder discussing the outstanding properties of these Aqueous Dispersions with suggestions for their application to textiles. Rohm & Haas Co., Inc., Philadelphia, Pa.

29. Continuous Card Stripper—A 20 page booklet describing in detail continuous card strippers, their advantages, the power required to operate, etc. Saco-Lowell Shop, 147 Milk St., Boston, Mass.

30. Lubrication of Textile Machinery—32 pages illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

58. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full-fashioned knitting.)

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. SKF in the Cotton Mills—24 page bulletin describing bearing installations for practically every machine in the textile industry including roller bearing spindle and tension pulley. SKF Industries, Inc., Philadelphia, Pa.

68. Bulletin No. 500. Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

110. 3-In-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

139. Textile Detergents—Theory of the use of alkalis and control of pH—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergent in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

141. V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-belt drive design of special V-belt drives, numerous standard tables, charts and belt and sheaves list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

152. Plant Check-up List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154. Johnson Bronze Bulletin No. 340—showing over 800 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1574 on the P. I. V. Gear—giving details of this positive variable speed control. Link-Belt Co., 307 N. Michigan Ave., Chicago, Illinois.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drive. Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers' Association, 1794 McCormick Bldg., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, P. O. Box 1605, Providence, R. I.

164. Johnson Rotary Pressure Joints—Bulletin describing the rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

168. The Tube-Tex for Tubular Knit Goods—Bulletin describing this modern machine which extracts, processes, dries, conditions and folds in one continuous operation, lowering costs, saving labor, power, space and waste. H. W. Butterworth & Sons Co., York and Cedar Sts., Philadelphia, Pa.

170. Gates Textile Accessories—showing the increased efficiency and economy to be secured through the use of Gates cone belts, evener belts, card bands and loom binder cushions. The Gates Rubber Company, Denver, Colo.

171. Design of V-Belt Drives—48 page booklet full of valuable tables and data showing the type, number and design of V-belts that will give the greatest efficiency on each particular drive. The Gates Rubber Company, Denver, Colorado.

176. Sonoco Products—A 60 page illustrated booklet giving descriptions, specifications and charts of the many Sonoco products, including bobbins, cones, tubes, cork cots, roving cans, spools, rolls, etc. Sonoco Products Co., Hartsville, S. C.

184. Speed Control Handbook T-35—new reference book in variable speed control, said to be the most complete and helpful book on this subject ever published. 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

185. Dulux—The White Finish That Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E. I. du Pont de Nemours & Co., Finishes Division, Wilmington, Del.

187. The Wildman Single-Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

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KNITTING SECTION

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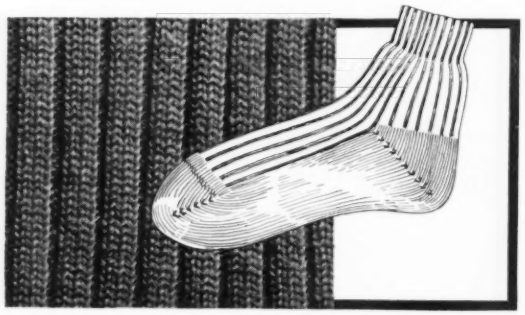
KNIT·KNACKS

JUST SAY "SHARPIE"

The "sharpie" trend in socks for youngsters, especially of the junior high and high school age, has been going on for some time and we thought it would be a good idea to find out what buyers and salesmen in the stores think of the future of this market. With practically no exceptions the opinion is that sharpies are still on the way up. "Louder and flashier" is the password to the children's market. The sock shown here, a typical sharpie sock for boys, has broad blue, orange and white stripes of varying widths. Bright colors are vital—the louder the better—and the more stripes and colors you can put together in crazy arrangements the more you will please the youngsters. "All you have to say is, 'It's nice and sharpie' . . . and they'll tell you to wrap it up," said a salesman in one Fifth Avenue store. The Scott & Williams Komet Machine is the machine that meets the growing demand for more colors and stripes in the sharpie style. It produces any combination of ribs and as many as five combinations of stripes in colors. And because it is equipped with tipped heel and toe attachment it can carry the color effect into the heel and toe. It is also equipped to produce rubber tops, if wanted. Most versatile of machines, the Komet is adaptable to an endless variety of designs. It is the *only* machine that makes any combination of ribs, ribbed-to-toe, knits successfully any type of hosiery yarn and covers a wide range of yarn sizes within the gauge. It is your machine for meeting all changing demands in the wide open children's market.



COLORFUL ANKLETS FOR THE COLLEGE GIRL

Anklets in solid, striking colors are expected to be indispensable in every college girl's wardrobe this fall, and it's more than a guess that the volume on this type of merchandise will grow fast when some of the new leaf colors and interesting ribbed-to-toe designs are shown. One of the country's leading jobbers is planning a fall promotion of a special new line of these anklets in ten different styles, some with straight tops, some with cuffs, all in attractive leaf colors. Illustrated here is a typical anklet for college girls. Cotton, wool, angora and angora and wool mixtures are expected to be the fabrics in greatest demand. For these too, the Scott & Williams Komet machine is the logical machine, because of the wide range of ribbed-to-toe patterns it produces and the ease with which it works with any type of yarn.

BUSINESS IS BIG IN "CHECKERS"

In the metropolitan stores the word everywhere is, "The new basket weave and wicker weave patterns are among our fastest moving items." The latest development in the increasingly popular Links-and-Links merchandise is the "checkers" anklet for children. Because of the growing popularity of anklets and the checkerboard pattern, buyers are enthusiastic about the future of this new small-size anklet — produced on the S & W Komet 4" diameter, 132 and 168 needle Links-and-Links machine.

SELECTED BEST SELLERS

Shown here are infants' and children's socks of the type being promoted and sold in great volume by one of New York's most alert stores. Note the variety of colors and stripes and the difference in stripes in the top and the leg. Color and more color, stripes and more stripes—finely grouped. For the production of these best sellers the efficient, fast operating Standard H Machine is ideal. It produces infants' and children's socks, half-hose and anklets with straight or turned-down tops in 70 gauge, fine fabrics with tipped heel and toe and dual control striping. It permits different combinations of stripes in stand-up or turned-down cuffs and in the balance of the leg and foot—in as many as six different colors with almost instantaneous change in striping arrangement. With the same machine and attachments 54 gauge merchandise in 1x1 and 3x1 rib effects with stand-up, turned-down or crinkle tops in combination with dual control can be produced. Especially important is the full and correct range of sizes given by this machine. We will be glad to show manufacturers the possibilities of the Standard H and prove its high speed production, economy and ease of operation.

SCOTT & WILLIAMS, INC., 40 Worth Street, New York, N. Y.

Established 1865

"THIS IS THE SCOTT & WILLIAMS MACHINE AGE"

Some Interesting History on the Development of the Knitting Machine

By Snow Brown

MANY PEOPLE connected with hosiery mills probably do not know that they owe their jobs today to a weary minister's wife and her very solicitous husband. But had the Reverend William Lee, a poor curate of Calverton, Nottinghamshire, England, not become tired of seeing the knitting needles fly endlessly back and forth in his wife's hands during the long winter evenings he doubtless would not have set about to make life easier and a little less monotonous for her.

Mrs. Lee was but filling her place in the long years of development in the business of making stockings. Her hand-knit yarn hose were a big improvement over those worn before knitting needles were invented at the beginning of the sixteenth century. Leg coverings had come into use in northern Europe when the early inhabitants had sought some means of alleviating the extreme cold. Those first hose were made of skins and later of a coarse cloth. They were clumsy articles of clothing but they served their purpose.

Courtesy, Gotham Silk Hosiery Co.

Later cloth hose were adopted as standard clothing equipment in England, the poor people making them of coarse cloth and the wealthy of velvet or satin. At first the stocking was attached to an upper garment and not until knitting needles made knit stockings possible were they made separately.

In 1561, Lady Montague of Queen Elizabeth's court knitted a pair of black silk hose as a New Year's gift for the Queen. The royal lady received many costly gifts but none pleased her as much as her first pair of silk hose.

Queen Elizabeth immediately asked if she might secure more. Lady Montague was flattered with the thanks of the Queen and answered, "Surely. Since they please Your Majesty so well I will at once begin another pair."

"Do so," commanded Elizabeth. "The silk stockings are so pleasant, so fine and delicate that henceforth I will wear no more stockings of cloth." One wonders what the illustrious Queen would say should she receive some of the gossamer thin creations which the knitting mills produce today.

But with the Queen's admiration knitted stockings became the current style. Stocking knitters were kept busy supplying the demands of both men and women for the hand-knit hose. Through some Scotch knitters the trade spread to France, where a guild of stocking knitters was established, and they chose for their patron saint, St. Fiacre of Scotland.

Colors changed, of course, in popularity but the extremely long dresses of the women made the color-change less important to them than to the men. The masculine knee-length breeches gave the men an excellent opportunity to display their long knitted stockings.

And so it was in the midst of this vogue of hand-knitted hose that Mrs. Lee's knitting needles got on the nerves of her husband. He set his wits to work to find a way to relieve his wife of her nedless task of supplying the family with stockings, and his eyes of the ceaseless movement of the needles.

The result of his domestic chivalry was the first knitting machine and on it, in 1589, he reversed the order and knitted his wife a pair of stockings. Nothing is recorded for us of their style or quality but neither is anything said of a complaint from Mrs. Lee.

The Reverend Mr. Lee appealed to Queen Elizabeth for aid to perfect his machine and produce cheap, shapely, knitted stockings instead of the clumsy cloth hose or the very costly hand knitted ones. But the Queen's reply was, "Would you take the bread out of the mouths of the knitters?" Maybe she was leaning backward in her sympathy with labor.

Finally, after as much insistence as the minister dared offer the Queen, she looked at his coarse, yarn stocking and said, "If your machine can knit *silk* stockings I might perchance help you." That, however, was only a characteristic Elizabethan way of getting rid of the inventor, for she never dreamed that his loom could knit hose of anything so fine as silk.

When the inventor returned with a pair of finely knit silk stockings, the Queen offered other excuses for refusing him aid. So Lee crossed over into France.

He believed in his invention but he lacked the money to put it into operation on a commercial basis.

In France Lee found a very different reception. King Henry IV, the dashing Henry of Navarre, was delighted with the new machine and became his patron. There he prospered until an assassin's dagger soon ended the king's life and the Englishman's prospects.

Lee tried to enlist aid from other French notables but no one seemed interested in his silk stocking invention. Under a Catholic regime the unfortunate Protestant minister was thrown into prison and died.

Fortunately Lee's knitting machine invention was not destroyed with the inventor. No accurate record is found to indicate just who revived his process but by the middle of the seventeenth century his knitting machines were in use, not only in England and France, but in other European countries.

In 1689 the "modern invention" was brought to America by some German immigrants of a sect known as Mennonites. They set up their stocking frames in Germantown, Pa.

By 1790 the stocking industry was established in several Connecticut towns. In 1822 stocking frames had been secretly brought over from England and established at Ipswich, Mass. The first mill for knitting stockings was established in Germantown in 1825.

When an operator looks through his hosiery mill today the thought of the little foot-power machine which the Reverend Mr. Lee invented nearly three and a half centuries ago seems to him a crude affair. Even the stockings he knitted for Mrs. Lee would seem shapeless and quite different from the trim affairs which are now produced in quantity.

The improvement in the quality and looks of hose came with the evolution of the knitting machine into the full-fashioned power machine which William Cotton of England perfected and had patented in 1864. It has since been the standard for all types of full-fashioned hosiery machines.

William Cotton's full-fashioned machine was exported to Germany in limited quantities about fifty years ago. Soon there sprang up several German machine builders in and around Chemnitz, and Germany rapidly developed a home and export market for hosiery.

About forty years ago the first German built machines were exported to the United States. Mills in this country were soon leaders in producing more hose at a cheaper cost. However, in importing the machines from either Germany or England, the cost of the shipping in those days was great and the delay of securing repair parts was a distressing item.

To offset such unnecessary costs Messrs. Thun and Janssen designed and built the first American-made full-fashioned hosiery machine. Full-fashioned machines today are furnishing milady with exquisite hose, all the way from the practical service weight to the sheerest, spider-web quality.

The words hose and stocking seem to have been interchangeable ever since a leg covering was first used. "Hosa" is an old German word, and "hose" is the Anglo-Saxon form, meaning a casing or tubing. Stocking comes also from the same language sources and means almost the same thing. When the word hose or stocking is used today, either word is correct to designate the fine-textured leg covering which pleases Mrs. or Miss America as much as that first pair pleased the English Queen.

An Eye on the Knitting Mills

The machinery formerly used in the plant of the Piedmont Hosiery Company of Gastonia, N. C., has been moved to Shelby, N. C., where a new mill to manufacture ladies' hosiery has been formed and is operating in the LeGrand-Eskridge building. J. W. Cash is in charge of the mill, which it is understood will have 12 machines operating.

A new full-fashioned hosiery mill will be located in Mebane, N. C., with Richard Kale in charge of operations. The plant will be located in the building formerly housing the Elkin Motor Car Company, which is being renovated to suit mill operations.

Chappells (S. C.) Full-Fashioned Hosiery Mill Corporation has been granted a charter to manufacture, dye and finish hosiery. Authorized capital is $10,000. Incorporators are J. L. Younts, E. M. Wilson, and L. E. Werts.

Mid-State Box Manufacturing Company, Asheboro, N. C., has begun work on its new plant. This company is headed by E. O. Schaefer, formerly general manager of Old Dominion Box Company.

Clarke-Washington Industries Corporation, Jackson, Ala., has installed the first of 24 full-fashioned hosiery machines. The remainder will be put in place as soon as they arrive at the plant.

It is understood that A. A. Haggard has placed a proposition before the Merchants' Association of Plant City, Fla., to transfer a hosiery mill from Newport, Tenn., to that city.

It is understood that a hosiery mill may be established at Lillington, N. C., provided local citizens finance part of the undertaking. The plant would manufacture men's hosiery.

Smiles Knitting Mills, Ltd., Wilmington, Del., have been incorporated to manufacture hosiery; capitalization is authorized at $100,000.

SeLing Hosiery Mills, Nashville, Tenn., have installed two new single unit full-fashioned knitting machines at a cost of approximately $18,000 each.

United Hosiery Mills, Chattanooga, Tenn., will make alterations in the plant building to improve working conditions.

May Hosiery Mills, Burlington, N. C., have begun work on the 3-story $20,000 addition to the plant.

Chalfont (Pa.) Hosiery Mills will install new high speed 45-gauge full-fashioned machines.

Gotham Silk Hosiery Company will move its finishing plant from New York City to Philadelphia.

Palmeto Hosiery Mill, Laurens, S. C., has completed installation of 10 new full-fashioned hosiery machines.

Petersburg Hosiery Mills, Inc., New York City, has been incorporated with 200 shares of stock.

A charter has been granted Maxton (N. C.) Textile Corporation.

KNITTING KINKS

Operating and Fixing of S & W Model ES Machines

(Article 6)

By Emmett Starr

THIS is the sixth article* in a series concerning the care, operation, and fixing of the Model ES machine. The series is written with the assumption that the reader has before him a copy of the S&W catalog of parts pertaining to this machine so that he can follow each Plate as mentioned in the article. Save your copies of the magazine so that you will have the series complete. Should you wish any particular phase of fixing discussed, the author will be glad to do so upon request through the editors.

The Splicing Yarn Cutter and Holder and Stop Motion

ASSUMING YOU HAVE BEFORE YOU the Model ES catalog of parts and can readily locate the parts alluded to—in this, and future articles, we will deal more directly with the kinks and difficulties met with in fixing and adjusting this type of machine.

No doubt you'll often have trouble with the high splicing and double sole yarn cutter and holder and also the stop motion that is connected with the cutter head. That these parts operate efficiently is most essential in making all styles of wrap patterns.

The high splicing and double sole yarn cutter and holder consists of six main parts, as follows: base (100230), gear (100232), cutter head gear (100231), cutter head bracket (100242), cutter head (100236), and the operating lever (100233), all found on Plate 22 of the catalog.

When having trouble such as the splicing yarn not shearing off or not being held in the holder; some of the wrap yarns are sheared off and perhaps held in the holder for a course or two when making the high splice or the double sole; the cutter head not dropping out of action soon enough so that the trip (200604) Plate 22 will not come in contact with the needles that are switched up when making the main rack moves going into the heel or toe; and various other troubles, we hope the following fixing and adjusting information will be of some benefit to you.

Base means foundation or starting point, so naturally when trouble begins we should start at the starting point to correct that trouble. Make sure that the base screws are drawn down tightly so there will be very little chance of their working loose when the cutter head is in action.

When the cutter head does not drop out of action with a snap, check the gear, to see that it is not binding on the gear bracket stud (300233) Plate 22; make sure that the stud is held firmly in place by the gear bracket stud setscrew (15226) Plate 5. The next step is to check the cutter bar (200440 and 200441) Plate 11. When the bar is fastened to the gear, they both should work freely so that when the bar drops off the drum cam the cutter head will be taken out of action with a snap and not lag. A slow action of the cutter head is likely to cause the head itself or the stop actuating trip (200604) to come in contact with the needles that are switched up at the start of the heel or toe.

Cutter bar spring (6609) Plate 11 is fastened to the cutter bar and to the hook on the lower guide plate. Without the aid of this spring, even though

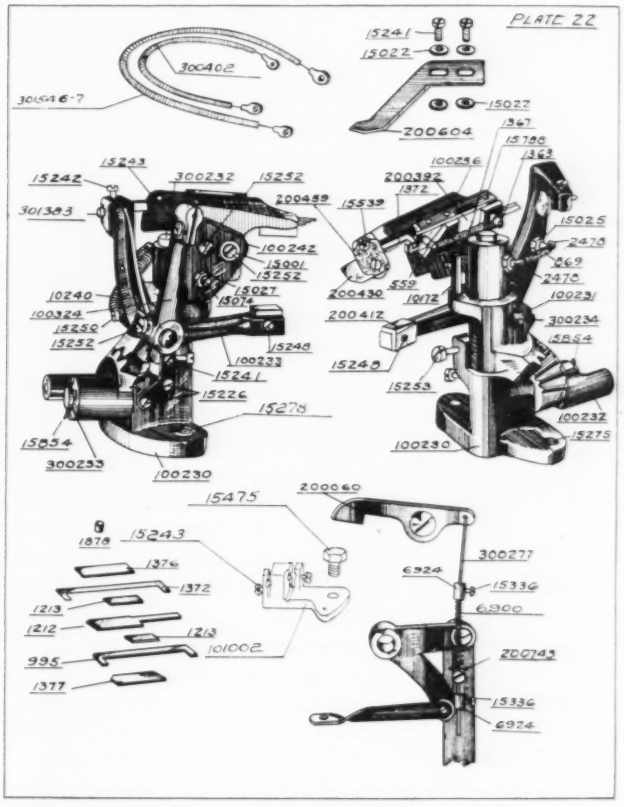


Plate 22, Model ES Catalog of Parts

*The first article appeared on page 108 of the August issue, the second on page 123 of November, the third on page 112 of the December 1938 issues, the fourth on page 106 of January 1939 and the fifth on page 103 of the March 1939 issues. Thus far discussed are the upper guide plate, the gap closer shaft, stitch cam operating levers, stitch regulating lever shaft, pattern drum, pattern drum friction, drum levers, clearing cam thrust bar, front raising cam, thrust bar and guide plate, and pattern pushout cam; besides many other important points.

the cutter bar and the gear are not binding, the cutter head would not be removed from action very readily. This spring must be strong enough, not broken or not disconnected.

Cutter head gear and cutter head bracket should swing freely on the shaft (300232) Plate 22 the same as the gear should swing freely on the stud. If they do not do so they will cause the same trouble that a binding gear and cutter bar would.

The cutter head is fastened to the right side of the cutter head bracket. The front end of the head can be raised or lowered when necessary. When the proper height has been determined (so that the trip or the shear blade does not rub or rest on the sinkers while in action) see that the cutter head screws are tight so that they do not work loose.

Setscrew (15074) Plate 22 controls the position of the cutter head. Some cutter heads, when in action, swing farther around than others in order to get the best results as to the shearing off, holding and entering of the splicing yarn. Once the position of the cutter head has been decided upon, tighten the setscrew nut (15027) Plate 4 so that the setscrew will be held firmly in place.

The shear slide spring (1367) Plate 22 must be strong enough to close the shear blade (995) and the shear holder blade (1372) when opened by the operating lever (100233) Plate 22.

The best results are obtained in the shearing off and holding of the splicing yarn, by having the shear plate set so that no light or space shows between the blade and plate when the blade is closed. Keep the blade sharpened so that the yarn is sheared off clean and not pulled apart. This can be done very easily with a hard stone.

On the second main rack move of the pattern drum, the cutter bar is raised by the 3/16-inch drum cam, allowing the stop actuating trip on the cutter head to swing in toward the cylinder, so that the trip will be in position to stop the machine when coming in contact with any needles that are not drawn down by the left hand stitch cam.

Setting the Cutter Bar

Before taking up the setting of the trip, we will discuss the proper setting of the cutter bar. When the bar is resting on the 3/16-inch drum cam, all the parts pertaining to the cutter head swing in toward the cylinder. When swinging in too far, the shoe on the end of the operating lever may rub or hit on the edge of the outside sinker ring, causing the edge of the ring to be worn or battered. The cutter bar should be shortened so that the shoe will not touch the edge of the sinker ring. When the right adjustments have been made, do not fail to tighten the cutter bar screws and make sure that the eccentric on the upper bar is down against the lower bar and that the eccentric is fastened securely to the bar so that there will be very little chance of loosening up while riding up or dropping off the drum cams. Once the cutter bar is adjusted properly, it will be a long time before it needs to be reset.

In setting the stop actuating trip, make sure that it isn't *in* too far. This can be checked very quickly

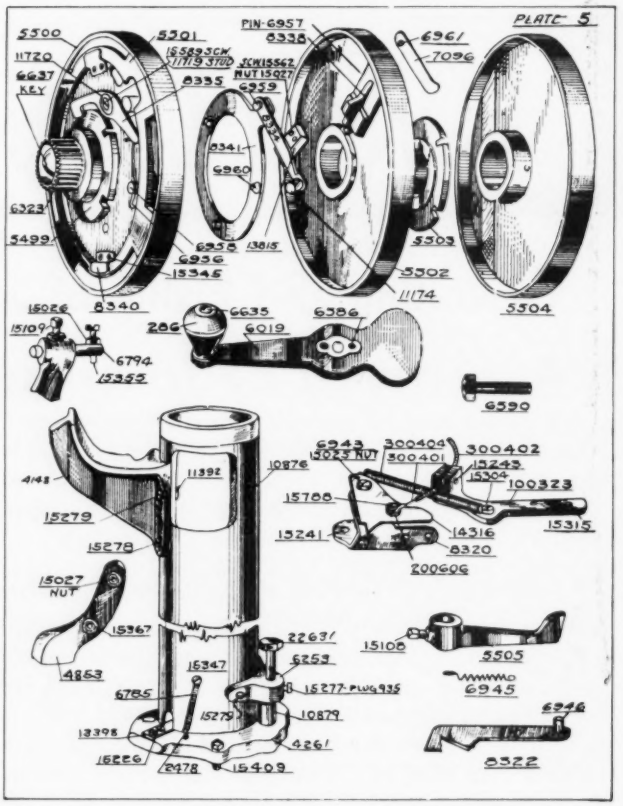


Plate 5, Model ES Catalog of Parts

by raising the cutter bar, or by swinging the cutter head in by hand. If the trip comes in contact with the needles that are being drawn down by the running down or left-hand stitch cam, it should be set back in order to clear these needles so that there will be no danger of the trip coming in contact with the needles and hindering the trip and the cutter head from dropping out of action when necessary.

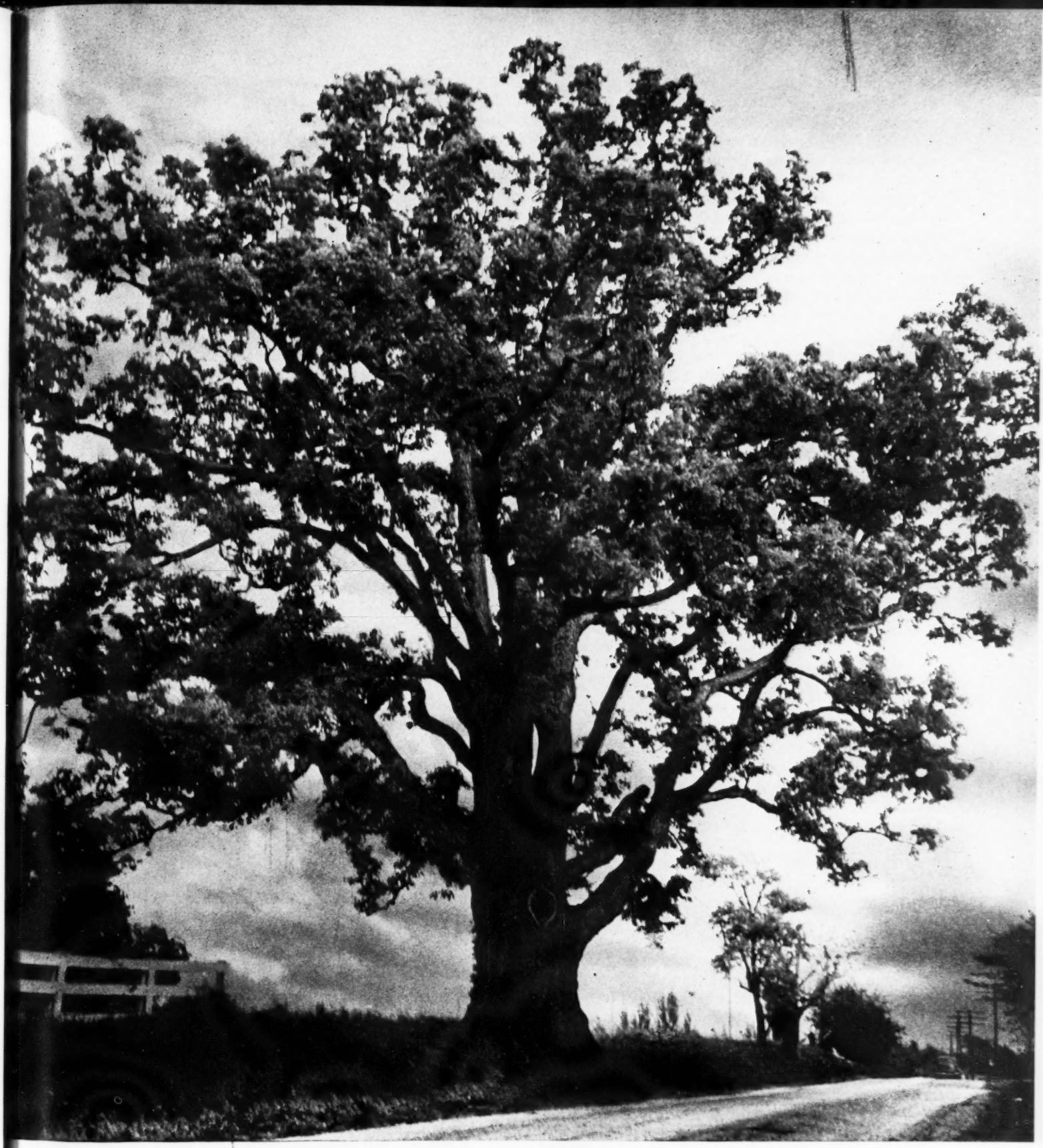
The trip should not be set down too close to the sinkers. When the proper height of the cutter head has been ascertained and that the trip rubs or rests on the sinkers, it should be bent upward just enough to clear them.

The Stopping Action

Now that the proper setting of the cutter bar, the distance in and the height of the trip have been discussed, we will take up the stopping action.

When the trip is in position, and comes in contact with any needles that for some reason are not drawn down by the left-hand stitch cam, it should cause the machine to stop. The trip, when coming in contact with these needles should move the trip forward for a distance of approximately ½-inch. This action will cause the stop actuating finger (14136) Plate 15 to be pulled out of position, releasing the stop actuating lever (5505) Plate 5, allowing the stop finger (8322) to come in contact with the high speed pulley stop ring (5501), thereby causing the high speed pulley stop lever (8335) to be disengaged from the high speed hub (5499) allowing the high speed gear to run free while the cylinder remains stationary.

When the needle or needles that come in contact



"Storms make oaks take deeper root"

OLD SAYING

In a 40-hour week the new READING high-production twenty-six section forty-five gauge full-fashioned knitting machine produces 97 per cent more volume and 116 per cent more value than the ordinary eighteen-section forty-two gauge machine.

TEXTILE MACHINE WORKS • READING, PA.

with the trip have no effect on the stop motion, no doubt something must be wrong. Check over all the brackets and other parts of the stop motion attachment that are supposed to be securely fastened, also the cable core; it may be broken inside the casing. One of the most common troubles is with the cable core adjustment. This is caused by the cable casing not being held in place by the cable clamps. Keep the stop motion in proper adjustment; it will save time, trouble and expense.

The stop actuating trip remains in action until the main rack move going into the high splice heel. On this move the cutter bar is raised by the 3/8-inch drum cam which puts the splicing yarn cutter and holder in action, the trip swinging inward beyond the needles that are being drawn down by the stitch cam. This same move drops the splicing yarn finger into action and inserts the medium butt high splicing cam (8304) Plate 17. This splicing cam draws down all the needles except the two extra short butt needles on each side of the instep which are used for inserting and removing the splicing yarn.

The splicing yarn finger is raised by the leading double sole cam (300337) Plate 20 just after the two extra short butt needles at the start of the instep, and held up by the central double sole cam (6385) Plate 20 to keep the splicing yarn from knitting in the instep. The rear double sole cam (200437) being tapered, allows the double sole finger to come down gradually just before the two extra short butt needles at the end of the instep which is used to insert the splicing yarn.

When making the change from the high splice heel to the heel, the cutter bar drops off the 3/8-inch drum cam so that the cutter head will be taken out of action before the needles that are raised by the switch cam are likely to come in contact with the cutter head or the trip.

In changing from the heel to the foot, the cutter bar is raised by the 3/8-inch drum cam, (the same height cam that is used when making the high splice heel,) allowing the cutter head to swing into position after the needles that are raised when making the heel have passed the point where the cutter head and trip enters. The cutter head swinging in too quickly may cause the trip to come in contact with these needles, thereby putting the stop motion in action, causing the machine to stop.

Going from the foot to the ring toe, the cutter bar drops off the 3/8-inch cam onto the 3/16-inch cam withdrawing the cutter head from action but leaving the trip in position to stop the machine if necessary. On the following move the bar drops off the 3/16-inch cam allowing the trip to swing out of action so as to not come in contact with the needles that are raised when going into the toe. The trip is brought into action after the finish of the toe so as to stop the machine if some of the needles are not drawn down by the left-hand stitch cam for some reason, such as broken butts or the auxiliary lowering cam (200101) Plate 12 not going *in* far enough so as to bring down the extra short butt needles, as the switch cam does not operate when going off of the toe. The trip remains in action until the completion of the sock or the press off.

Various things or reasons may cause the splicing yarn not entering or shearing off properly.

In the making of the high splice heel and double sole, the operating lever comes in contact with the front (200435) Plate 20 and rear (200436) double sole cutter cam. These cams being in the channel or groove on the under side of the outside sinker ring can be advanced or retarded in order to secure the best location so as to operate the cutter head more efficiently.

When the splicing yarn is not being inserted by the two extra short butt needles at the end of the instep every course, it may be that the double sole finger does not come down soon enough. It is possible that the finger is binding, the spring too weak, the double sole thrust bar is not free, or that the rear double sole cam is too long and perhaps it could be tapered a little more. The finger may be too high up when it is supposed to rest on the throat plate; see that there is no dirt or lint under the finger, or that the thrust bar isn't holding it up. Check the adjusting lock screw (15293) Plate 21 as it may have worked loose so that it may be necessary to reset the adjusting screw (11115) Plate 21.

The splicing yarn is run through a vibrating tension (200603) Plate 26. When knitting, the tension is released from the yarn, due to the vibrating tension large disc (200603) coming in contact with the vibrating tension cams (200572) on the outer edge of the gear cover (100103) Plate 28. If the tension is not released on the splicing yarn when knitting it will cause misplaiting in the high splice heel and double sole.

The splicing yarn being out from between the disc will cause it not to shear off; instead it will wind around the wrap yarns causing a break in the pattern. With no tension on the splicing yarn it will skip and scatter instead of being inserted at the end of the instep with the aid of the two extra short butt needles. When having this trouble, check the yarn, see that it is in between the disc, that there isn't too much tension on the yarn so that it is likely to pull or tear apart, or no lint or dirt is between the disc, before doing any adjusting on the cutter head.

Another reason the splicing yarn may have a tendency to skip is because the medium butt high splicing cam when inserted in the high splice heel and double sole does not draw the long, medium, and short butt needles down low enough so that there isn't much difference between them and the extra short butt needles that are not drawn down. These needles should be drawn down low enough so that when the splicing finger is being gradually lowered by the rear double sole cam, the splicing yarn will not be distorted in any way as it is about to be inserted by the two extra short butt needles at the end of the instep. By bending this splicing cam down a trifle it may give enough difference to remedy this trouble. Check the medium butt high splicing cam screw (6922) Plate 17; it may have become loose, or it may have too much of a shoulder so it does not hold the splicing cam low enough. The adjusting screw (15252) Plate 10 may not be set properly. If set in too far it will

not allow the splicing cam *in* far enough; that being the case, the short butt needles will not be drawn down, and not set in far enough the splicing cam will be inserted too far, drawing down all the needles including the extra short butts. Either case will cause splicing yarn trouble. Then again the splicing cam may not be bent at a proper angle so that the needles will be drawn down smoothly and not bind between the splicing cam and the lower center cam (13557) Plate 17; this will force the splicing cam out so that it does not draw the short butt needles down and it also will break the butts off the needles. Keep the nicks from the splicing cam as they have a tendency to shatter the hooks of the needles.

During the high splice heel and double sole some of the wraps may be sheared off; this trouble may be caused by the cutter head being too low or because the shear and holder blade are open too far.

Keeping Full-Fashioned Moistening Troughs Clean

EDITOR COTTON:

According to the question on page 120 of the June issue 1938 concerning a jelly accumulation in the moistening troughs of his full-fashioned machines, it looks like "CONTRIBUTOR NO. 6813" is craving for the return of the good old days when all throwsters soaked their silk, to soften the natural gum on it and make it easier to wind, in a solution of olive oil soap, with some borax, or a dash of neatsfoot oil when the silk was wanted with more moisture in it. Those were the only things our daddies, and grand daddies before them, used, and the formula for a silk soaking solution was generally little different anywhere, say: 3 per cent olive soap, ½ per cent borax, 1 per cent neatsfoot oil, boiled together, was the usual formula. Temperature was 90 degrees F., when soaked for 8 hours during the day, and 80 degrees for an all-night soaking, with little variations like adding glycerine or olive oil, which were emulsified by boiling with the soap; that was the standard method used by the throwsters. No compounds with fancy proprietary names were known, and throwsters usually knew how to work their own problems successfully.

However, the demands of the trade today are changed, and throwing silk for knitting full-fashioned hosiery presents difficulties unknown in dad's day. The throwster finds it necessary to use in his soaking, which is the most important operation, a solution with ingredients which will increase the hygroscopic nature of silk to the utmost. To keep the spindles going with the increased speed of modern winders, doublers and twisters with the least possible breakages, the silk must be well lubricated with something which does not dry out too quickly, so it is claimed; besides, he must return the thrown silk containing enough moisture, softness and strength to make knitting easier.

With the competition the throwster has to meet, it is no wonder all of them are at all times seeking to improve their work, and the best soaking solution is the means by which they hope to have knitters beat the proverbial path to their door.

Every throwster now has his special, favorite formula for soaking silk, which he has worked out himself and keeps carefully guarded, or he has been following directions given him by some chemical concern which deals in highly specialized softeners and lubricants for textile purposes. But since they are all human, and it is hard to change human nature in individuals, when a throwster has found a formula for his soaking which suits his particular need it takes a lot of persuasion to make him change. It took several centuries to make him believe that oil would do as well, and even better than soap.

The variety of ingredients which are offered as the best for soaking raw silk is large indeed, and includes oils and fats derived from all three of nature's kingdom: animal, vegetable and mineral. Being scientifically prepared, easily saponifiable and soluble in water, the emulsion obtained from any of them can be safely used for softening and lubricating the silk to be thrown. The worse feature of having such a large variety of emulsifiers, as there are now, lies in the danger of having silk thrown with a mineral softener mixed with silk which has been softened with a vegetable or an animal oil or fat. This, however, becomes the dyer's problem and has nothing to do with what this contributor would like to know.

The amount of softener used in a soaking bath by the throwster is not so great as to cause, by itself, the "thick jelly accumulation on the glass floats, felts, and in the bottom of the troughs" as described by "CONTRIBUTOR NO. 6813". That may also come from the silk-gum—sericin—which is being kept in a moist, softened condition from the time it enters the soaking bath until it leaves the knitting machine. The moistening solution used by the knitter to keep the thread in a good knitting condition is also a contributing factor in softening the silk gum. This gum on the thread, in proportion to the degree of softness, is more or less scraped off on the felts, and accumulated on it as well as on the floats and in the troughs, according to the nature of the softener or lubricating solution used in knitting.

Knitters, too, have different notions as to what is best to use to keep knitting silk soft and lubricated. They are also aided by the manufacturers of knitting oils and specialties. Many knitters stick to a solution of olive oil soap as the purveyor of lubricant; some will use kerosene; others are using softeners made of mineral oil or animal fats. Still others are not satisfied unless they add a penetrant of some kind in the emulsion to soak their felts for good knitting. There are those who claim they get good results by moistening their felt wicks with nothing but cold water, and are doing quite well. It seems to me this last method would be the solution for this contributor's problem, for in this way the silk gum will not be as soft as with a soapy or oily solution, and the gum on the silk thread is kept more resistant to scraping.

The only way I know to keep troughs, felts, and

floats free from excessive accumulation of oil is to systematically clean them out at regular intervals. In some mills the felts are changed once a week or oftener. The felts are thoroughly scoured, washed and dried, then flattened out to use again when another change takes place. When the felts are removed the troughs and floats are also cleaned with some scouring solution before clean felts are put in. I know of a mill where the felts are left on the machines until they are too dirty to be used any longer. When they are changed a general cleaning of the machine takes place. In this mill the silk is kept moistened and lubricated with water only, and the line of hosiery turned out is very fine. Using water in their troughs the felts do not get sticky quite so fast and there is hardly any oil accumulation to bother with.

Some knitters may be able to explain their reasons for using emulsions with lubricants and penetrants, when others get results by simply moistening with cold water. Judging from the results witnessed in the mills I know, it can't be for economy's sake that these knitters resort to water, to keep their silk in the very best condition for knitting, and I am sure the readers of COTTON and "CONTRIBUTOR NO. 6813" would be pleased to be informed on the subject.

CONTRIBUTOR NO. 6853

Another answer to this question appeared on page 111 of the July 1938 issue. Watch this department for an interesting and helpful article on keeping moistening troughs clean as described by William T. Leggis.

Sheer Hose Knitted on Coarse Machines

EDITOR COTTON.

Since the modern trend toward sheer hosiery, knitters are now knitting 3-thread on coarser gauge machines than were meant to knit such sheer fabrics. Knitters are receiving complaints of the fabric popping out. Sometimes this occurs even after the stocking has been worn. It is indeed a serious problem to have the stocking break out somewhere in the leg fabric, without seemingly any cause whatsoever. I would like to know the cause of this trouble, and how it can be eliminated.

CONTRIBUTOR NO. 6814.

EDITOR COTTON:

This is in answer to the foregoing question on page 111 of the July issue by "CONTRIBUTOR NO. 6814" on knitting 3-thread stockings on coarser gauge machines than were meant to knit such sheer fabrics.

I am sure this contributor means 42-gauge machines as I do not think it would be at all profitable to try to run 3-thread hose on a 39-gauge machine.

When we speak of sheerer hosiery today, we must consider that most 2- and 3-thread stockings are knit from a high twist yarn, not altogether crepe, but a twist ranging from 40 to 80 turns per inch. I agree that high twist yarns have helped the manufacturer with coarser gauge machines (referring to 42-gauge) because the appearance of the finished stocking does not acknowledge definitely the gauge of the machine to the buying public as did the ordinary tram silk.

It must be understood that silk containing more than 20 turns to the inch loses strength and elasticity. Therefore, we must compensate this by using a full needle bar, or on a 42-gauge machine, we must use the full 392 needles as this will take care of the additional twist in the yarn. This also takes less strain off the finished stocking while it is being boarded.

Never knit a 3-thread stocking on a 42-gauge machine with over 50 courses to the inch because high twist yarns are stubborn to the reaction of the sinker and divider motions, and when knit in a room without humidity controls, the yarn is less pliable and will show up many stitch distortions.

Most defects in loop formation in the finished stocking can be traced almost entirely to a runner instead of a pop-out.

In conclusion, if the 3-thread stockings are knitted as I have outlined in the foregoing, the only place to remedy the trouble is with the throwster. There are so many mills specifying different twists that even the best throwsters become careless in tying of the ends, which undoubtedly will result in a pop-out under the strain of wearing.

CONTRIBUTOR NO. 6830

Doubts Trade Pact Aids Hose Exports

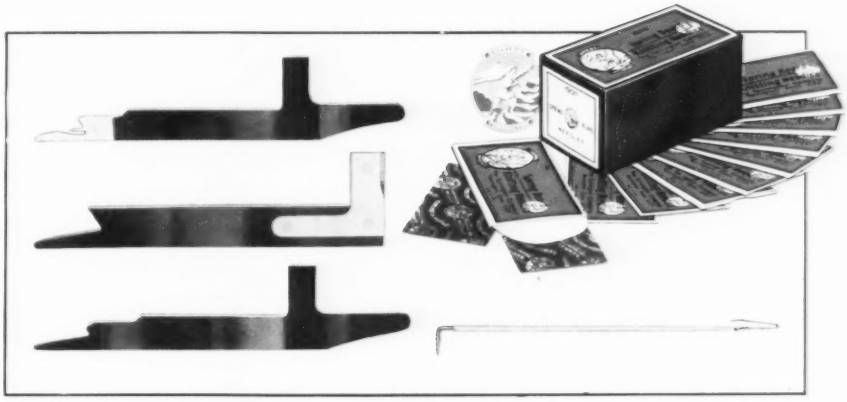
The National Association of Hosiery Manufacturers took issue with a recent Department of Commerce statement, attributing the gain in shipments of full-fashioned hosiery from this country to the United Kingdom to the new reciprocal trade agrement. The association holds that the increase is more likely due to the change in sources of supply that previously furnished this type of hosiery to England. The changed situation in English relations with the former German and Czechoslovakian hosiery industry as referred to. Although the figures show a jump in exports to the United Kingdom during the first quarter of 1939 the hosiery association said it believes these were due, in the main, to other causes than the slight changes in tariff. It stated the more recent policies of Germany and its harsh treatment of minorities has created within the English market the same consumer resistance to German goods as we find in this country. For a time English importers were able to take care of much of their needs in Czechoslovakia but as this country has become for practical purposes an integral part of Germany, goods from Czechoslovakia are no more acceptable in England than are those from Germany. The association pointed out that it is friendly to the program for reciprocal trade agreements but it believed the Department of Commerce was "probably not well founded".

Meinig Hosiery Plant to Be Sold

Trustees for Meinig Hosiery Co., Reading, Pa., were given authority by Federal District Court Judge Dickinson in Philadelphia early this month virtually to complete the liquidation of the business because of the company's failure to put through a plan for its reorganization under the bankruptcy laws.

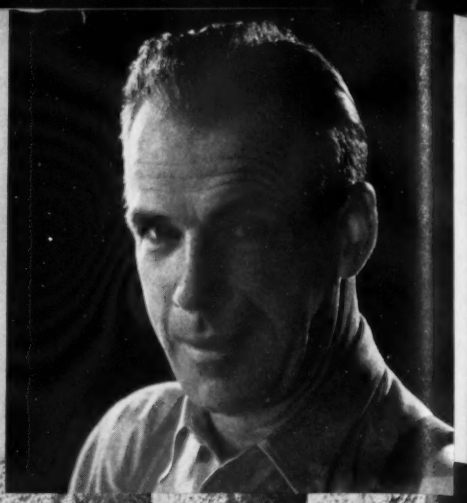
"FASHIONED FIT"..."INDIVIDUALLY PROPORTIONED"..."SLENDERIZING"

Tailored quality is becoming increasingly important in selling hosiery to the woman of today. And to keep pace with the more exacting standards, progressive mills are depending more and more on quality materials and knitting equipment. Needles are important in meeting the new demands. Torrington Needles — machine-made with automatically controlled precision — are tailored to knitting mill needs as the finest hosiery is tailored to the needs of the modern woman. You will find true economy and an extra measure of efficiency in their accurately machined finish...in their uniformity and strength . . . and in the greater durability that machine production methods give them.



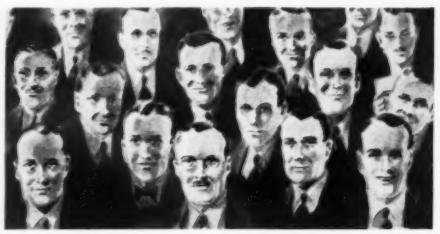
TORRINGTON ***Needles and Sinkers***

12.5% said* "HIGH QUALITY" when asked, "Why do you use TORRINGTONS?"



"WHY do you use Torrington Needles?" was a question asked by an independent research organization of a group of Torrington Needle users in the textile industry. 12.5% of this group gave "HIGH QUALITY" as the reason. The answers of the other 87.5% were varied but none-the-less definite. Some said, "They have proved best." Others said, "They give us the best service." Still others said, "They last longer"... "They are the most uniform," and so on. Practically all in the group were using Torringtons because experience had proven that they were the best buy in needles.

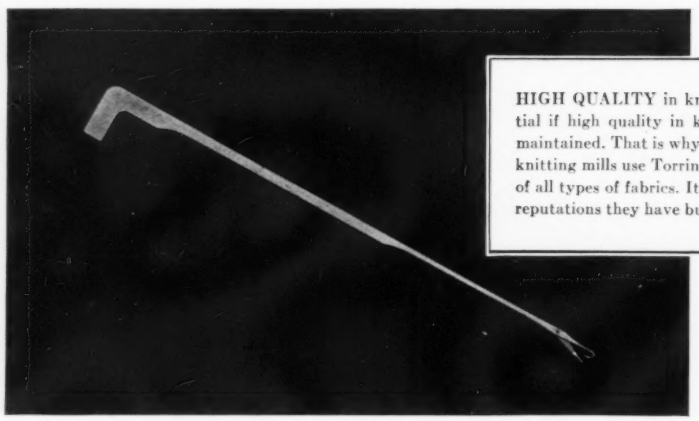
Do you make needle tests? Have you made a thorough investigation of the performance records of the needles you are using? We believe that a careful survey of your needle requirements will convince you that Torringtons—the *machine-made* needles—will give you the most for your money.



***MILL MEN'S REASONS FOR PREFERRING TORRINGTON NEEDLES**

Proved Best	18.2%	High Quality	12.5%
Best Service	17.0%	Better Temper	9.0%
Best Results	15.9%	Last Longer	6.8%
Most Uniform	14.8%	Economy	2.3%
Best Made	13.6%	Smooth Finish	2.3%
Most Satisfactory	12.5%	Miscellaneous	11.4%

Many of the knitting mill executives surveyed gave more than one reason under the above classifications for preferring Torrington Needles. As a result, the figures for the entire list total more than 100%.



HIGH QUALITY in knitting needles is vitally essential if high quality in knitting is to be achieved and maintained. That is why so many of the world's leading knitting mills use Torrington Needles in the production of all types of fabrics. It is one way they safeguard the reputations they have built up for quality merchandise.

THE TORRINGTON CO., TORRINGTON, CONN., U. S. A.
Established 1866

The Torrington Company	1640 Fairmount Ave., Phila., Pa.
The Torrington Co., Inc.	200 Fifth Ave., New York, N. Y.
The Torrington Company	538 South Wells St., Chicago, Ill.
The Torrington Company	Guilford Bldg., Greensboro, N.C.
The S. M. Supplies Co.	210 South Street, Boston, Mass.
E. G. Paules	Bendix Bldg., Los Angeles, Calif.
The Torrington Co., Ltd.	137 Wellington St.W., Toronto 2, Ont

Factories at

Torrington, Conn. — Upper Bedford, Quebec
Coventry, England — Aachen, Germany

TORRINGTON *Latch Needles*

Piedmont Section, AATCC, Enjoys Annual Outing

THE Piedmont Section of the American Association of Textile Chemists and Colorists held its annual outing at the Ocean Forest Hotel, Myrtle Beach, S. C., on Friday and Saturday, June 23 and 24. This is a yearly occasion participated in by the members of this section, embracing the Carolinas and Virginia, and their friends. More than 400 members and guests and their wives attended this year.

No formal program of any kind is carried on for this event, which is a purely social and entertainment occasion. A. Henry Gaede, chairman of the section, H. E. Kiefer, vice chairman, and J. W. Ivey, secretary, were in charge of the activities, which included a golf tournament for the men, a bridge tournament for the ladies, and other special prizes, all of which were awarded at the banquet on Saturday evening, where there also was an enjoyable floor show staged.

Misplaced reliance upon the promise of the hotel publicity manager and photographer, who failed to provide, by press time, representative photographs of the party and other information, precludes a fuller report. It is hoped that some interesting pictures and detailed information may be given in the next issue of COTTON.

Pennant Race Brings Order

To stimulate and maintain interest in departmental housekeeping, here is the successful plan worked out by the foremen of a certain plant in their foreman's meetings.

Once each month a committee of five foremen spend a half day in a plant wide inspection tour. The orderliness of each department is judged according to the following points:

1. Cleanliness of floors.
2. Cleanliness of windows and lighting fixtures.
3. Clearness of aisles.
4. Orderliness with which material, supplies and hand tools are arranged or piled in the department.
5. Absence of obstacles which might cause accidents, lost motion, or extra footsteps.
6. The cleanliness and general condition of equipment.
7. Sanitary conditions of work places, of drinking fountains, washrooms and toilets.
8. Arrangement of hand trucks.
9. The appearance and cleanliness of workers themselves.
10. The orderliness of the foreman's personal work place, desk or office.

A maximum of ten points may be given by the inspectors for each of these ten bases of judgment. A department which receives a rating of 85 or more points out of the possible 100, is entitled to display a conspicuous green banner for the following month. After having won a green banner three months in succession, a department is given a blue banner which it may display until such time as the inspection committee may rate it below 80 points.

A department which does not rate 85 points is given a red banner on which is printed "We've got to do better."

—"Management Information", Elliott Service Co., Inc.

Endless Belt Length for Crossed Drives

$$L = 2C + 1.57\ (D + d) + \frac{(D + d)^2}{4C}$$

Where L = Length
C = Center distance in inches
D = Diameter of large pulley in inches
d = Diameter of small pulley in inches

Example: Ten-inch drive pulley, 30-inch driven pulley and 60-inch center distance.

$$L = 120 + 1.57\ (30 + 10) + \frac{(30 + 10)^2}{240}$$

$$L = 120 + 62.80 + \frac{1600}{240}$$

$$L = 120 + 62.80 + 6.66$$

$$L = 189.46 \text{ inches}$$

—*Houghton.*

Checking Bearings

The bearings of all electrical equipment should be subjected to careful inspection at scheduled periodic intervals in order to secure maximum life. The frequency of inspection, including addition of oil, changing the oil, and bearing wear is best determined by a study of the particular operating conditions.

A warm bearing or a "hot box" is probably due to one of the following causes:

1. No oil. 2. Excessive belt tension. 3. Failure of the oil rings to revolve with the shaft. 4. Rough bearing surface. 5. Improper fitting of the journal boxes. 6. Bent shaft. 7. A poor grade of oil, or dirty oil. 8. Bolts in the bearing cap may be too tight. 9. End thrust, due to improper leveling. A bearing may become warm because of excessive pressure exerted by the shoulder of the shaft against the side of the bearing. 10. End thrust, due to magnetic pull. 11. Excessive side pull, because the rotating part is out of center.

—Westinghouse Electric and Manufacturing Co.

Planned Inspection and Maintenance

Planned systematic inspection of electrical equipment cuts down production delays due to breakdowns. Equipment should be classified for regular inspection. Equipment whose failure would not necessarily cause serious production delays may possibly be scheduled for less frequent inspections.

The record chart is one means of recording electrical equipment maintenance and overhaul. The equipment is listed vertically and scheduled dates of inspection are listed horizontally by weeks and months. The schedule of inspection, lubrication, and overhaul is laid out on the chart. Based on this plan, work can be planned systematically and the status of each piece of equipment readily determined.

—Westinghouse Electric and Manufacturing Co.

Disposing of Waste in Making Rubber Tops

THE EDITORS OF COTTON recently received an inquiry from a knitting mill making rubber-top hosiery, requesting information as to methods of handling waste from these goods. The mill wished to dispose of the rubber-top waste through some profitable channel as heretofore it had been burned.

A request for this information was sent to several mills, which responded:

Mill No. 1. "The people who buy waste object to mixing pieces of that containing rubber with other waste, colored or white. They pay one price for white waste, another for colored and still another (lower) price for waste with rubber in it.

"We cut out the portions of fabric with rubber in it and grade our waste as follows: white, colored, white with rubber, and colored with rubber.

"Some mills mix all waste with rubber and sell it as cotton waste with rubber. There are a number of concerns who buy up waste pieces, looper clips, etc."

Mill No. 2. "We hardly know what to tell you regarding disposal of waste which contains cotton covered rubber thread other than to say that the waste dealer to whom we sell our waste under contract is very particular that we keep separate all waste that contains any of the cotton covered rubber thread. This we naturally do. The price that we obtain for this type of waste seems to be less than the regular waste."

Mill No. 3. "We are running about three different types of rubber tops here at the plant. We have some machines making what is known as automatic tops. This is the machine that makes the complete stocking, laying-in the rubber in the top in one operation. Then we have two different types of transfer rubber tops that make the transfer goods both in the white, or rather in the greige, for dyeing, and also in the ingrain numbers, which of course is already dyed.

"In our ingrain numbers we make about 10 to 12 different colors of stockings. Yet, we only use two colors of dyed rubber yarn. We use the brown and navy blue. Any real dark shades look well just using the blue. Of course in the tans and browns, we use the brown elastic yarn. In this way we only have to stock two colors of rubber yarn. Of course in the white, or greige goods, we use an elastic yarn covered with natural thread, which dyes in the natural process of dyeing the hose.

"Our rib top goods, made with the elastic thread is made of course on the large cylinder machines. We are using 5-inch cylinders and laying in the rubber every fourth course, the rubber extending all the way through the top down to the transfer course.

"We have found after much study that the size and stretch of the elastic yarn has everything to do with the quality of the top and merchandise. In running rubber yarn you absolutely must have the right size and stretch in the elastic yarn that you should have. Otherwise, your tops will never look well or stay up when wearing.

"As to waste made, which contains the rubber, you get very little for it, as no one seems to really care whether they buy it or not. We have just been putting all of our waste together which contains rubber and selling it to the waste companies at a very low figure."

Mill No. 4. "We use very little rubber in our tops. In fact, it is a very small item and we dispose of the waste through our regular channels."

Mill No. 5. "We do accumulate waste in rib tops made with elastic yarn in the tops. The disposal of such waste has always been a very difficult matter, and even when it can be sold it must be at such an extremely low price that it is hardly worth handling.

"Where we have tops that have been attached to the leg of the stocking and this becomes waste, we cut the elastic top from the leg of the stocking and sell them as separate items. This is done for the reason that soft piece waste will bring a better price and is always more salable than a rib top with rubber in it.

"In our plant we only manufacture high grade half-hose in the transfer type, therefore, we have only this type of fabric with rubber top to contend with. We are sorry that we cannot give you more information on this matter."

If readers of COTTON have any ideas on methods of handling or disposing of rubber-top waste, the editors shall be glad to receive them.

Interdepartmental Interference

Foreman Henry Jacobs had a very likely young man, Swanson, working under him. He transferred Swanson around the department from job to job so that he had experience on practically every operation.

Then, some nine or ten months ago, business began to slow up and the opportunity to promote Swanson, as he had expected, did not materialize. Swanson being quite ambitious and a bit impatient, began to feel that he was not getting ahead as fast as he should, so he found an opportunity to talk to foreman Brandt of another department.

Brandt made the mistake of sympathizing with him and suggesting that, if Swanson were in his department, he would push him ahead much faster. Without definitely promising, he insinuated that when he had an opening for Swanson he would ask that he be transferred.

This interview with Brandt made Swanson more discontented. As a result, he began to let his performance slump. Jacobs noticed this and "called him down." Swanson talked up a bit and told Jacobs he had not been doing all he should for him and that Brandt had promised to transfer him soon.

This exasperated Jacobs because he had been training Swanson for responsibility in his own department. He went to Brandt and told him please to "tend to his own business," and not to be interfering with his men. Now, the two foremen are on the outs and Swanson has lost favor with the foreman who intended to push him ahead.

—"Management Information", Elliott Service Co., Inc.

TRENDS and HIGHLIGHTS of the KNIT GOODS MARKETS

Silk Hosiery Prices Raised But Still Slow in Following Raw Advance —Hosiery Mills Curtailing While Underwear Manufacturers Are More Active—Sport Shirts and Lightweights Give Knitters Good Spurt—New Hosiery Shades for Fall—Retail Sales Heavier

Philadelphia, June 16, 1939

BRANDED FULL-FASHIONED HOSIERY MANUFACTURERS effective June 1 raised their prices 35 cents per dozen but Gotham only 25 cents and these increases made suggested new retail prices for the standard numbers 85 cents per pair instead of 79 cents but the trade feels that other increases will be named shortly because the feeling is that full-fashioned should go up all told about 50 to 75 cents to take care of silk's increased costs. Seamless hosiery of silk has been very strong and while 35- to 40-cent advances are common some want up to 75 cents more. Hosiery mills are between seasons and some without silk so that operations are not active, being about half time in Philadelphia. Underwear mills on the other hand have experienced a distinct spurt in lightweights and in sport shirts as well as in men's knitted briefs which will take some into July. Prices are strong in underwear and some advances have already been registered in men's fleeced, 25 cents in the union suits.

Full-Fashioned

With the exception of Gotham, practically all leading manufacturers of women's branded full-fashioned hosiery followed the lead of Julius Kayser & Co, by advancing, effective June 1, all base numbers 35 cents. Gotham lifted only 25 cents but at the same time changed terms which had the effect of increasing prices of certain of its numbers. The suggested retail price tags on base numbers were raised from 79 to 85 cents and opinion is that shortly, if silk does not take a dive, urices for fall will go up again possibly another 15 or 25 cents. Retail demand for this type hosiery has been very good and some stores have done 30 per cent more in May. Unbranded mills have followed suit by advancing about 35 cents and they feel that additional increases will shortly follow. Full-fashioned mills in Pennsylvania following advice of their trade associations have been curtailing for two reasons to permit hosiery prices to get up to silk and because they are mostly short of the raw material.

Men's Half-Hose

Men's half-hose has not been active with jobbers but with the warm spell they are doing very well in the short socks called slacks which have elastic tops. It will be a boom season for these. Fall lines of men's branded goods are expected to appear with no important price changes, it being understood that the present retail brackets of 35, 50 cents and $1 will be retained. Silk numbers are not expected either to change much despite the drastic upturn in silk. Production of the half-hose trade has been under that a year ago and this applies for the first part of the year compared with last, being about 10 per cent less.

FATHERS HAVE CHANGED TOO!
TODAY MEN CHOOSE KNITTED UNDERGARMENTS MADE OF
Durene
— they absorb and evaporate perspiration twice as fast as similar garments made of ordinary cotton yarn
Durene

The makers of Durene yarn are stressing the factor of rapid absorption and evaporation of perspiration in garments made of their yarn. The above is a typical poster used in retail selling . . . . . .

Wool goods were not carried over last year so a fair season is in prospect and probably a good one.

Seamless

Manufacturers of women's seamless silk hosiery right along have taken more positive action under the price rise in silk than have knitters in the full-fashioned section of the business. They started to advance early whereas their competitors in the unbranded full-fashioned end of the trade could not because they had to keep their old relationship with branded that until recently did not go up. Some seamless mills are asking 75 cents higher than at their low which is close to the upturn in the same period that raw silk has experienced. There is more labor involved in full-fashioned but in seamless more in the stocking represents silk. It is reported in the market that Hanes Hosiery Mills after having placed another advance in effect for June-July deliveries is now 35 to 40 cents up from early this year as a result of the raw market increase. In the seamless end there is continued activity in anklets and large deals for next Spring are reported to be close at hand for manufacturers. Knitters expect to take initial contracts at no change in the price level although the recent strength in cotton yarns makes this less certain if it keeps up. So far this year seamless hosiery shipments have been larger than a year ago while the increase in anklets has been an outstanding development.

Underwear

The lightweight end of the business has been running out with a flourish. Much last-minute buying came into the market to give manufacturers active runs on lightweights and men's sport-type shirts made by underwear knitters. Among these the new ribbed constructions of tennis styles have been noteworthy. These shirts are made in novelty ribbed stitch and have caught the public's fancy. The other constructions of tennis shirts such as the popular flat knit are moving very well. Mills report in numerous instances they will be active on lightweight underwear orders until well into July. The men's and boys' athletic shirts are on a low-price basis

and this is stimulating buying interest. An advance came early this month by a mill making men's fleeced shirts and drawers for fall, 12½ on shirts and 25 cents on union suits. In the cotton ribbed end of the business most mills still need orders and for this reason no advance in them is in sight. Higher yarn prices and the chances that higher labor costs will soon be here are factors in the market. Mills making polo shirts have been active, getting out goods that were bought very late and they will be busy at least to July 15. Underwear production in recent months has been above normal, some being 13 per cent above.

Branded Mills Lift Full-Fashioned Prices

Effective June 1st with the exception of Gotham Silk Hosiery Co. practically all the leading manufacturers of women's full-fashioned hosiery followed the lead of Julius Kayser & Co. by advancing prices on base numbers by 35 cents to $6.35 per dozen. The Gotham firm lifted quotations on six styles from $6.00 to $6.25 but changed its terms from 2 per cent 10 days 30 days extra to net 30 days from date of invoice. These new terms affect the entire line. Julius Kayser & Co. announced advances on fourteen of their women's full-fashioned hosiery numbers, the low end budget styles being raised 35 cents a dozen to a new base of $6.35. Nine other styles such as heavy service constructions using much silk were raised from 75 cents a dozen to $2.25 a dozen. The new prices are only for June delivery and the company pointed that a further and more general advance was due the end of June if silk continued near its present price and if the contemplated changes in the wage structure occur through the proposed minimum wages under the Wage and Hours Act.

Changes made by the manufacturers necessitated suggested changes in retail price tickets which have already been placed in effect in large department stores in this city. The Kayser advances for example pushed its five budget numbers up into the 85-cent range, the same goods having previously retailed at 79 cents. Three other numbers, a service weight, a service sheer, and a colored heel style were lifted into the $1.15 retail bracket from the former $1.00 range. Claussner Hosiery Co. provided a surprise by making it known it would not raise its prices for June. In a letter to its customers this firm said it enjoyed a very fortunate position on silk throughout June which it would share with its customers on orders for delivery prior to June 30.

FORECAST

(Opinion submitted by COTTON'S market correspondent.)

Philadelphia, June 16, 1939

Conditions in industry and sentiment among business men have improved over the month and this in itself makes the outlook somewhat brighter and more hopeful than four weeks back. The balance of the year will see probably the better part of 1939 with conditions expanding more toward the end of the year unless war or unforeseen factors again enter in. There are indications that business, realizing the handicaps it is under from recent regulatory laws, will make the best of conditions, trying at the same time to swing public opinion back to what they feel are sounder ways of thinking for the country's good.

In textiles the outlook is better than a month ago. Prices of wool, cotton and silk have been steady or strong this month although silk no longer is hitting new highs and instead has declined from its 1939 peak reached May 16. The strength in cotton and wool together with a very good level of retail selling throughout the country is having the effect of giving textile manufacturers many rush orders and in addition seasonal merchandise stocks have been well cleaned up so that the fall season outlook is much brighter than one and two months back. One example of the cleanup in stocks of goods is in swim suits where manufacturers and jobbers greatly under-estimated their needs.

Bathing-suit manufacturers have sold out their stocks and rush orders are coming through in duplicates calling on the mills to make the goods in the shortest possible time. Jobbers, too, cleaned out stocks so that these mills not only look ahead with confidence but are apt to manufacture more goods next season. This is indicative of the underbuying in other lines in the face of a good retail demand in most sections of the country and low retail stocks. It means manufacturers of textiles will have a better second half of the year than the first six months.

Cotton and wool and silk advances have made profit margins somewhat smaller but mills are placing advances in effect and these will gradually work up to a new basis and on this score retaiers do not feel advances will be enough to stop consumer buying. In full-fashioned, retailers rather feel it may help, strange as that may seem.

The prospects are for continued firmness in cotton for the next three months but the new crop may see some easing in the situation as reflected now in lower prices for the new crop to come on the market in October. This may be offset by higher mill costs or in cotton yarns by larger demand forcing more profitable selling prices. In wool the large consumption abroad for armament use is a vital factor and with large American consumption dealers look for continued strength. Silk is not expected to go higher and in fact it is felt that further easing may be seen within a couple of months. In the latter, hand-to-mouth buying should be continued for the present. Rayon shows no signs of going up yet.

This picture means that manufacturers and goods buyers can proceed somewhat more generously than they did earlier this year in making commitments for fall but no buying splurge should be indulged in because conditions, while improving, are not going to boom yet.

Hearing on Wage Scales in Hosiery Industry Held

Minimum wage rates of 40 cents an hour in the full-fashioned hosiery trade and 32½ cents an hour for the seamless branch were recommended to Wage-Hour Administrator Elmer Andrews by the hosiery industry committee. Public hearings on these recommendations were scheduled for June 12, 13 and 14 which were voted unanimously by the committee under the chairmanship of Dr. George W. Taylor, University of Pennsylvania. The committee stated that this unanimity constituted strong evidence of the soundness of its conclusions and in addition offered a striking testimonial to the democratic process which enabled members of the committee despite the fact that they represented highly diverse groups, to cooperate with one another that the policy enunciated in the act of achieving a minimum hourly wage of 40 cents as rapidly as is economically feasible, without curtailing employment substantially, might be effectively carried out.

In recommending different wage rates for the full-fashioned and seamless branches of the industry the hosiery committee became the first to invoke provisions of the act permitting establishment of classifications within an industry under certain prescribed conditions. The committee pointed out although the full-fashioned and seamless are engaged in the manufacture of hosiery, they differ so greatly in almost every other respect as actually to constitute two separate entities. As for the 40-cent-an-hour minimum wage for the full-fashioned hosiery mills, the report stated that it would necessitate wage advances for 19.4 per cent of the workers and increase the total wage bill by only 2 per cent. It will not, the report emphasized, result in increasing prices of women's silk hosiery. The report stated the principal problem in the industry was that of ad-

Say GOOD-BYE forever to Bad Matching

Make YOUR declaration of independence from all the limitations, troubles, rejects, seconds, etc., that the use of leggers and footers cause in your plant. Decide NOW to install this WILDMAN Single-Head Hosiery Machine. It knits the entire stocking in ONE operation—every one just like the other, PERFECT FROM TOP TO TOE. You'll like the other conveniences and economies this wonderful machine makes possible. Completely factory-tested and shipped assembled, ready for operation in your plant a few hours after it arrives. Write for complete details.

WILDMAN MANUFACTURING CO.
NORRISTOWN, PA.

WILDMAN
THE WORLD'S STANDARD

The Modern

WILDMAN SINGLE-HEAD, SINGLE UNIT FULL-FASHIONED HOSIERY MACHINE

vancing the minimum rate of seamless workers to 40 cents an hour, the goal of the Fair Labor Standards Act, and recommended that this should be done in more than one step. The report emphasized that the problem in the seamless hosiery branch was not a sectional one. Many southern manufacturers, it said, and indeed many southern areas provide comparatively high wages. while certain northern manufacturers and northern areas actually are in the lowest wage groupings.

Labor Claims to Be Menaced by Apex Decision

Branch No. 1 of the American Federation of Hosiery Workers on June 6th filed briefs in the United States Circuit Court of Appeals to set aside the $711,000 damage verdict won by the Apex Hosiery Co. It declared that labor unions would be exterminated if they are not considered immune from the drastic terms of the Sherman and Clayton Anti-Trust Acts. This point was also emphasized in briefs which the court allowed the CIO and its allies to file to support the appeal of Branch 1. The main theme of the briefs is that Congress never intended that the anti-trust laws should apply to labor unions, and that decisions by the United States Supreme Court establishing such a doctrine are out of line with modern economic, social and industrial factors, and should be reconsidered and brought into line with modern trends. The CIO brief said it proposed to show that the full legislative history of the Sherman and Clayton Acts not hitherto brought to the attention of the courts conclusively demonstrates that it was intended by Congress to exclude labor unions and their activities from the effect and prohibition of such legislation and that the first decisions interpreting the Sherman and Clayton Acts so as to embrace labor unions within their prohibitions rest upon an inaccurate and erroneous statement of the legislative history of these two laws.

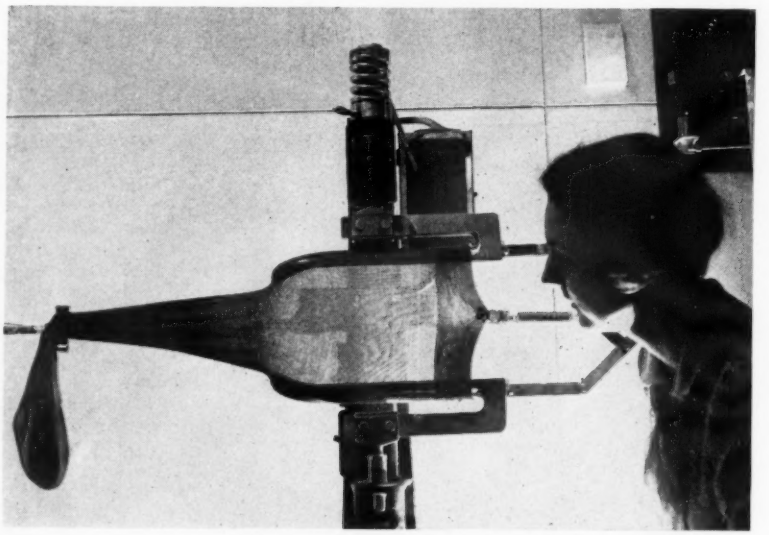
"We further propose to show that modern conditions compel a re-examination of the judicial decisions which have perpetuated the erroneous doctrine that labor unions are within the purview of the anti-trust laws, because the mischief committed by this erroneous doctrine is now growing into a menace to the continued development and functioning of labor unions". If the Apex decision is upheld upon the theory that the acts of the union members constituted a violation of the anti-trust laws, the brief says, then every strike, even the most peaceful ones, will be made illegal if it inter-

Full-Fashioned Hose Made of Cotton

The Federal government has decided that there is a market for full-fashioned cotton hose. This market will tend to reduce the surplus cotton in this country, but there are few full-fashioned cotton hose made at this time because the manufacturers do not yet know how to make them.

The government is cooperating with the manufacturers in learning how to make the hose and experiments are being carried out in the U. S. Department of Agriculture, Washington, D. C.

The cotton hose are being made on the same machines that make silk hose and are being shipped to Washington, where they are tested.



Science Service Photos

Upper photo: This is a machine which stretches the stocking and pulls it just as the top of the stocking would be pulled as with a garter. The garter may be seen at the top of the stocking.

At left: Two pairs of artificial feet which are placed against the rollers in many different positions so as to simulate the wear of the shoe on the stocking. These stockings stand much more wear in certain spots than silk stockings do and are therefore very well suited for golf and housework. The lady in both photos is Delia Ann Taylor of the U. S. Department of Agriculture.

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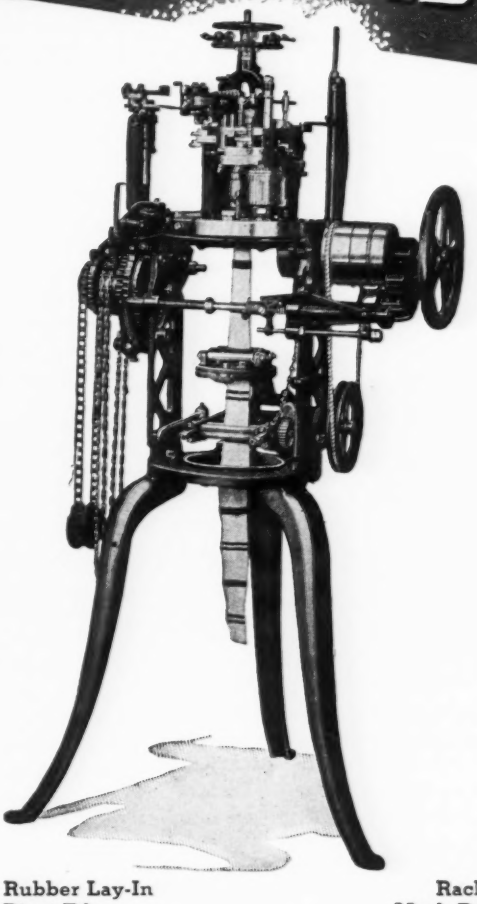

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feres in the slightest degree with the interstate commerce of the employer involved in the dispute. It added there is ample provision in local and State civil and criminal laws to afford protection for the public and for any individuals against any unlawful activities of labor unions.

New Hosiery Colors for Fall

New hosiery colors in light and medium tones, considerably lighter than those for last fall, are shown on the 1939 Fall hosiery card of the Textile Color Card Association. The new hosiery shades are described briefly as follows: *Holiday:* This is a lively medium beige and is a smart complement to costumes in warm browns, especially the new port, greens, brownish henna shades, blues and other shades. *Sunlit:* This is described as a warm golden beige going well with lively light browns and tawny tans. *Sunsan:* This is a smart medium beige emphasized for general wear with a wide choice of fall shades including sandy beige and neutral browns. *Facile:* This is a neutral beige having wide use for street wear with navy and slate blues, wine, violet tones, grays and taupes and black. *Roselite:* This is an unusual rosy beige effecting a harmony with grape wine and red wine shades or reddish or rosy browns. *Wineglo:* This was especially created to blend with the fashionable plum or rosy browns and is described as a light mauvish brown. *Tropic Earth:* This is a glowing burnished tan expressing a new color movement in the warm desert earth gamme. *Exciting:* A sparkling sunbright shade which blends perfectly with cognac, henna rust, terra cotta, and burnt amber tones in fall costumes. *Hawaii:* This is a lush tropical hue which adds a rich note to custumes in red henna, rust or spice shades, lively coppery browns, navy and brilliant blues, moss greens and deep marine types, duck and peacock shades and black.

Minima of 20 and 25 Cents Asked for Hosiery Learners

A minimum hourly rate of pay for seamless and full-fashioned learners of 20 and 25 cents respectively, for learner periods was asked by the National Association of Hosiery Manufacturers at a hearing conducted in Washington June 7th by Merle D. Vincent, chief of the Hearing and Exemption Section, Wage and Hour Division, Department of Labor . During the hearing Mr. Vincent questioned Earl Constantine, president, National Association of Hosiery Manufacturers, concerning labor costs and whether or not there was a tendency to increase the number of machines per worker since enactment of the Fair Labor Standards Act. Mr. Constantine said he did not believe this tendency existed except in isolated cases and he expressed the further opinion that under the NRA the machine load per worker was greatly reduced and that where a worker had been benefited at one time, employers would run into grave difficulties if they attempted to take such benefits away.

Homestead Hosiery Plants Begin Operation Soon

After months of planning by the Farm Security Administration in Washington and the Dexdale Hosiery Mills of Lansdale, Pa., four of the five projected full-fashioned plants have been completed on Government resettlement homesteads in the South and were expected to be in production July 1st with the fifth expected to begin operations about two weeks later. Of the 1200 Wildman single-head, single-unit machines to be installed by Dexdale in the South, 300 will go into the plant at Cumberland Homesteads near Crossville, Tenn. The Government is investing equally with the company, each having set aside $350,000 for the first three plants. The five are scattered through Tennessee, Alabama, North Carolina and West Virginia. Arthur Paul, vice-president of Dexdale, said the machines will be of the 540-needle single-head type, making the equivalent of 57-gauge silk stockings. Dyeing and finishing will be done at Lansdale and the hosiery will be sold to retailers at prices in line with other merchandise of the company.

As for the wage rates to prevail among the new plants Mr. Paul said the company would conform with the 40-cent hourly minimum expected to be established under the new wage and hour law about July 1. Dexdale has entered into a 45-year lease with the Homestead Associations and will provide management services as well as control the operating companies. The Government investment will be safeguarded by liens on the property of the cooperative associations at each homestead. The operating companies will pay rentals sufficient to cover all payments to the Government, plus all taxes, cost of maintenance, depreciation and insurance. Moreover, the associations will reduce the loans with any participation in profits above 5 per cent. Payments to the Government are to amortize the loan, with 3 per cent interest over a period of forty years.

Report Nylon Hose Coming in January

Buyers understand that DuPont and about a dozen of the larger hosiery manufacturers are busy on hosiery plans scheduled for late December to precede the first public offering of Nylon hosiery in January. The theme will be *Better Than Silk.* It is understood further that tentative resale prices have already been decided upon. According to the information available, 45-gauge Nylons are scheduled to retail at $1.35 and 51-gauge at $1.65. The wholesale price of each on this basis would be approximately $9.75 and $11.75 a dozen. The quantity of Nylons to be available then will constitute only a small percentage of the total full-fashioned business, inasmuch as it is believed DU Pont will be unable to supply any substantial quantities of yarn until its new plant is erected. Recent reports have indicated the stockings will outlast silk goods at a margin of 20 to 1 as a general rule, although they are said to run more easily once a thread is broken. Neither manufacturers nor buyers expect that Nylons will bring about a revolution in hosiery merchandising during 1940, due primarily to the $1.35 price, but which will no doubt decline after the product has been on the market for a time.

Japan Reassures Silk Trade on Prices

Assurance that the silk industry of Japan fully recognized its community of interest with the American consuming market was given in an address in New York City by Eitaro Okamoto, vice-president of the Central Raw Silk Association of Japan. He said he knew that the recent rise in the price of raw silk had been a trade topic of discussion here and declared that the Japanese industry never would permit a situation to develop in Japan which would not serve what the American industry regarded as its best interests, insofar as control of the situation lay within the power or capacity of the industry in Japan. Declaring that the Government of Japan has made every effort to discourage and destroy any attempt by speculative elements to manipulate prices, he said the causes behind the recent price movement were the result of a combination of circumstances which had no precedent.

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Berkshire Takes Exception to NLRB Decision

A total of 239 exceptions are taken by Berkshire Knitting Mills, Reading, Pa., in its answer to the recent order of the National Labor Relations Board. The answer was filed in Washington late in May by Wellington M. and Frederick J. Bertolet, attorneys for the full-fashioned hosiery mill. Replying in 85 typewritten pages to the board's order of April 29 in which the NLRB ruled the firm must reinstate 303 employes, some with back pay, and also dissolve the Berkshire Employes' Association, the company terms the order "So vague and uncertain as to require interpretation by the respondent at its peril." Wiliam M. Rutter, counsel for the Berkshire Employes' Association as intervenor in the case, took 119 exceptions. The hosiery union took one exception.

Refuses to Discharge Nebel Firm Trustees

In dismissing a petition of the Securities and Exchange Commission seeking removal of two trustees appointed by him for the Oscar Nebel Co., Inc., hosiery manufacturers, in reorganization, Federal Judge George A. Welsh late last month declared that the SEC was trying to embarrass him. The trustees are George McHugh, a personal friend of the Judge, and Harry E. Schoenhut, president of the company which has plants at Staunton, Winchester and Verona, Va., and Hatboro, Pa . The court refused to allow an SEC attorney to offer proof of charges of irregularities by the two trustees. These included the allegations that McHugh had named his brother-in-law and later a brother of the judge's first wife as guards at the company's southern mills without authority from the court and that the trustees had paid themselves $240 a week salaries without court authority. The Judge said he had a proof of these actions although not formally. Early in June the Federal Securities and Exchange Commission renewed its charges against the trustees and indicated again they would seek removal for alleged mal-administration. In the hearings before the referee in this case it was stated that the company was justified in filing its petition for a reorganization and that the attack on the proceedings by Mrs. Meta Nebel, majority common stockholder, should be dismissed as "utterly failing to prove her charges of fraud, prejudice and bad faith.' '

Seamless Wage Minimum Opposed by Southern Group

The hearing on wage and hour minima for the seamless and full-fashioned industry held in Washington June 12, 13 and 14 developed the fact that a fight right up to the United States Supreme Court will be waged by the smaller southern seamless hose makers, if Administrator Andrews approves the hosiery committee's recommendation for seamless of 32½ cents an hour. This was indicated after the hearing by H. M. Arthur, president of the Excel Hosiery Mills. He revealed that plans have been made by a group of 50 mills to get out injunction proceedings in Charlotte if and when Andrews approves the 32½-cent level.

It was charged that this increase will bring about wide unemployment in the industry in the South so that a large part of the industry in the South would have to liquidate if this wage level is set. It brought about a statement by Mr. Arthur that a new association would be formed to wage the fight. He said the Southern Seamless Hosiery Association would consist of about 50 firms and while it has no officers nor headquarters as yet it will make a fight for the Southern seamless hose industry, he declared. When Earl Constantine, president of the National Association of Hosiery Manufacturers, was testifying he was questioned by Mr. Arthur, who sought to bring out that it would be the South that the 32½-cent seamless minimum would mainly hurt.

Mercerized Yarn Shipments Increasing

Shipments of mercerized yarns continue to show improvement over those of a year ago as well as over the three previous years' average. According to Dean Hill, president of the Mercerizers Association of America, shipments for the first twenty-two weeks ending May 27 showed an increase of 39 per cent over the same period of 1938. When compared with the three previous years, average shipments for this year show an increase of 17½ per cent over the average for 1936-1937-1938. Mr. Hill expressed the opinion that the continued increase in shipments was due largely to increased sales of the better quality mercerized underwear as well as the steady demand from the hosiery industry. The increase in the price of raw silk is now beginning to have its effect on the demand for mercerized yarns for welts and feet in silk hosiery.

Personal and Obituary Items

HARRY PRICE has been appointed yarn sales manager of Celanese Corporation of America, succeeding TRUMAN P. HANDY, who recently was named chairman of Celluloid Corporation, a Celanese affiliate.

Obituary

GEORGE PEABODY GARDNER, 83, president and trustee of Amoskeag Company, passed away at his home on Cape Cod, Monument Beach, early in June.

ARTHUR S. MUSGROVE, 60, superintendent of the Musgrove Knitting Mill, Pittsfield, Mass., for 30 years, passed away the first week in June.

CARL C. JANTZEN, co-founder and secretary of the Jantzen Knitting Mills, Portland, Ore., died aboard a Union Pacific train near North Power, Ore. en route home from a trip around the world on May 30. He had been stricken shortly before by a heart attack.

LUDOLF PORTONG, president of Everfast Fabrics, Inc., passed away following a two weeks illness at the age of 65 on May 26.

THOMAS E. BRAYTON, retired treasurer of Union Cotton Manufacturing Company, Fall River, Mass., passed away recently at the age of 96. He retired 12 years ago, but until that time served nearly fifty years as treasurer of the company.

FRED W. BROWN, overseer at the Danvers Bleachery & Dye Works of the Naumkeag Steam Cotton Company, Peabody, Mass., passed away suddenly on May 25 at the age of 70. He had retired on May 19 after 44 years of service with the company.

ROWLAND K. RUDICIL, junior cotton technologist of the Bureau of Agricultural Economics, located at Texas A. & M. College, College Station, Tex., passed away April 23, following an operation. Mr. Rudicil had at different times been connected with some of the largest mills in both the South and New England.

WALTER B. GRAHAM, 60, secretary-treasurer of the Vass (N. C.) Cotton Mills Company, passed away during May.

OSCAR G. FISH, Lowell, Mass., passed away in May at the age of 87. For many years he served as overseer in the Hamilton and Appleton Mills at Lowell, retiring in 1921.

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TRENDS—THE YARN MARKETS

Cotton and Worsted Yarns Advance Because of Raw Strength—Silk Declines After Hitting Peak Last Month But No Great Weakness—Rayon Yarns Unchanged in Price—Volume Heavier as Sentiment Improves with Goods Stocks Small

Philadelphia, June 16, 1939

THE SPOTLIGHT OF THE YARN MARKET has turned this month from silk, which up to the middle of May was hitting new peaks each day but recently has been easier, to cotton and worsted types where the unexpected strength in the two raw markets has stimulated heavier coverage and increases in prices. Further advances in each may come if spinners get opportunity to place quotations on a more profitable basis, cotton yarn spinners claiming for instance they are losing moey at curret prices because yarns have not advanced in proportion to that in cotton this year. Rayon yarns have been more active, May shipments being 11 per cent ahead of April's with producers' stocks smaller. Worsted yarns are 2½ cents higher than a month ago and shipments on old contracts placed just prior to the advance have been good indicating such consumers are swinging into production on fall outerwear.

Cotton Yarns

Due to the large amount of cotton in the Government loan stocks and the shortage of many grades of spinnable cotton outside of Government stocks, the strength of cotton has been maintained over the last month and this in turn has caused a very firm tendency in the sales cotton yarn market. As the end of the present crop year approaches supplies of cotton outside of the loan are diminishing rapidly. One indication that the situation is reacting against spinners was in the recent filing of a protest by English spinners to Secretary of Agriculture Wallace. In this connection there is some feeling in the trade that while the squeeze in the raw material may continue until the new crop comes on the market this fall, there may be at that time a rather abrupt easing which might be reflected in the sales cotton yarn market.

During the last month actual selling prices have advanced approximately one-half cent but in many instances spinners quotations are up a full cent. Although they are selling fairly actively at higher prices than a month ago there is general complaint among sellers that prices are very unprofitable, with the most efficient producers in the industry now being able to do no more than break even or in some counts to make a very small profit. The large majority of spinners claim that selling prices are still from one-half to one cent under what they should be receiving to make a reasonable profit. Marginal producers are complaining that in some instances they are selling at one and a half cents per pound loss. Sales spinners are operating slightly more actively than a month ago with some being pushed to make the wanted deliveries in the short space of time specified.

The outstanding feature this month has been the heavy call for nearby deliveries from manufacturers of men's sport shirts and lightweight underwear, the demand for which has been greatly stimulated by the hot weather of the last two weeks. Retail supplies of these have been small and the mills have been booking rush delivery business to keep them active up to the middle of next month on lightweight goods. Producers of single combed yarns and to a lesser extent of high grade carded have been the chief beneficiaries of this spurt and prices of such yarn have been very strong. There has also been a continued active demand for mercerized yarns in the form of large specifications on all contracts with comparatively little new contracting being apparent. Large amounts of this type yarn are going into underwear and larger amounts are going into hosiery on account of the high price for silk. Shipments are averaging close to 40 per cent higher than last year.

Silk

During most of the last month raw silk has been displaying a softer trend, following the touching of a 1939 peak a month ago. Since this time prices have reacted ten to almost 20 cents due to the smaller consumption in the United States and the strong price resistance with others attributing part of the collapse to the break in the May position on the Yokohama Bourse. Hosiery manufacturers are cutailing drastically with some of the smaller mills entirely closed and many of the largest plants in Pennsylvania operating around 45 per cent wheeras all of them were running full time or better early in the year. They are mainly concerned now with getting prices of hosiery up to a level that will permit them to buy silk around its present level but in this connection a majority of them will adhere to a policy of buying on a strict hand-to-mouth basis because of what they consider to be the possibility of a further decline in silk during July, August and September.

Evidence of the curtailment among manufacturers was to be seen in the mill takings during May which dropped about 1500 bales below the April figure to 26,150 bales. This compares with 27,802 bales in April and 28,687 bales during May, 1938. Stocks in this country showed an increase to 24,201 bales in May compared with 20,738 bales in April and 37,016 bales in May 1938. Many in the trade are not yet prepared to accept the present level of silk as permanent and will not do so until the new level is tested over a period of several months, possibly for six. Until this has been done American hosiery mills are going to operate cautiously in the silk market but on the other hand there is little question but that a further substantial easing of prices would see a considerable amount of buying by mills whose stocks are very low.

Rayon

Selling of rayon yarns has been more active in the last month although trading is at a less active rate than earlier in the year. Shipments of rayon yarn in May showed an increase of 11 per cent over April and at the same time producers yarn stocks held at the end of May showed a decline of approximately 2,000,000 pounds from the end of April figures. Curtailment schedules have been in effect with most producers of yarn, several running recently at 15 per cent below the peak month of March. There has been no further price change in this type of yarn following the increase placed in effect a month ago of 50 denier. Sales of fine denier yarns have been heavy with the result that producers are spinning more of these than ever before. Prices continue unsatisfactory in relation to the cost of production and it is felt that these fine sizes are out of line with prices of the coarser yarns and that a general advance in fine yarns should not be unexpected.

Worsted Yarns

Although the wool top futures market has been barely steady prices of the new wool clip have been strong over the past month and this has been reflected in higher prices and being paid for worsted yarns. Advances have averaged 2½ cents over the month but new business has not been large due to the fact that a large proportion of the outerwear trade covered and rather extensively early in May before these advanjces were placed in ffect. As an indication of what has occurred spinners that a month or six weeks ago were quoting 2-20s, 50s in the oil at 95 cents are now quoting $1.00. While manufacturers have not as yet placed any large volume at the advances it is probably only a question of time before they are forced to do so. One reason for this is the strength of wools not only in the United States but abroad. Prices of medium grades of wool have been strong abroad because of the large amounts of them being consumed in military fabrics both in England and on the Continent.

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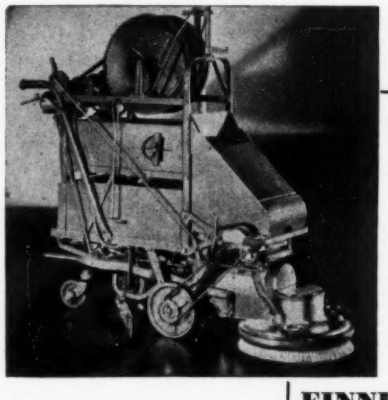

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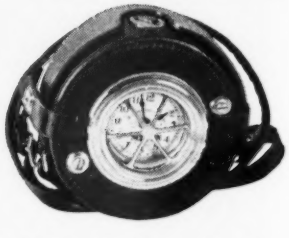

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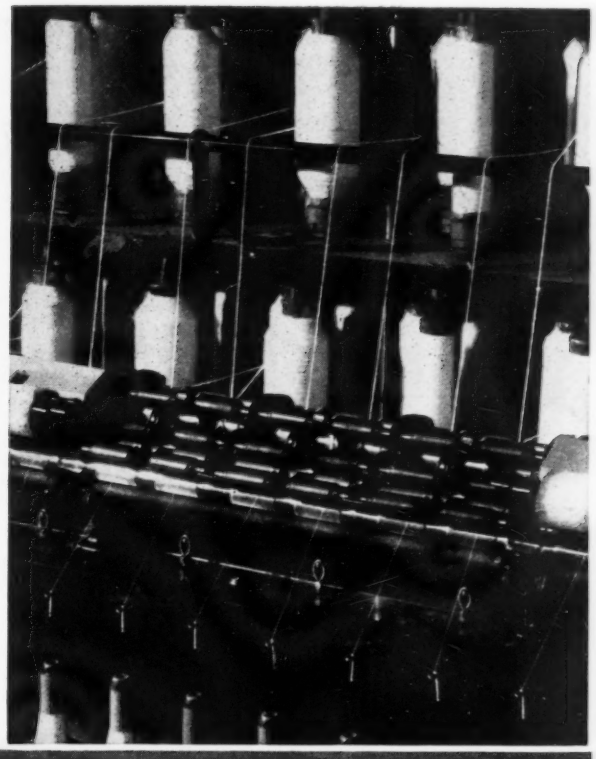

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PROVIDES cleaner Opener Rooms, Picker and Carding Rooms. Dust and fly reduced over 80%.

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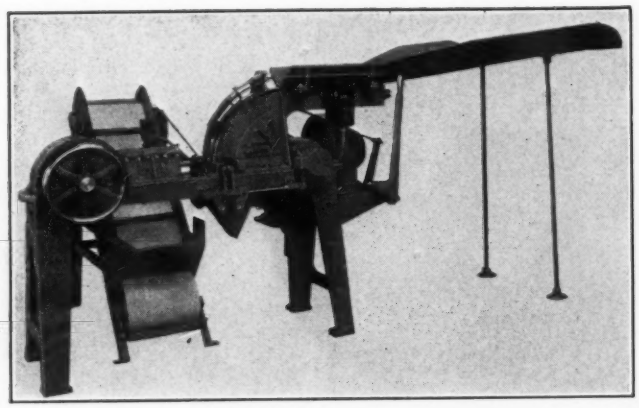

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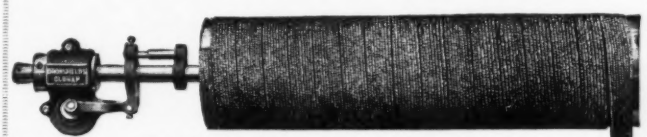

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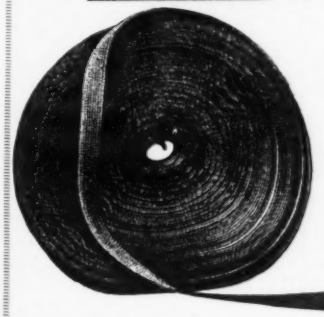

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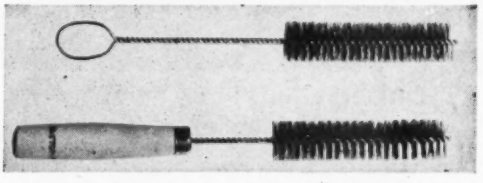

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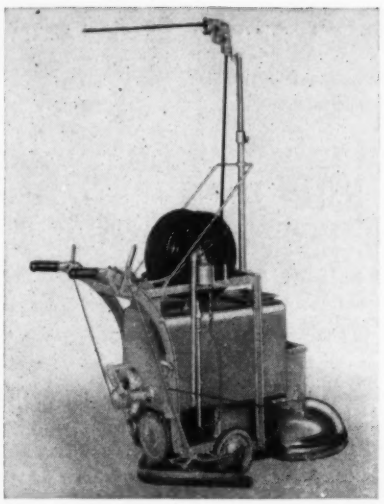

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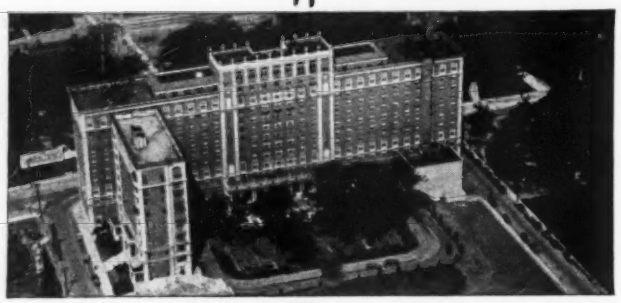

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by Fay H. Martin

Every carder, frame fixer, section man, and superintendent will find "The Roving Frame," by Fay H. Martin, an instructive pamphlet. Mr. Martin, who has long written articles for "Cotton," clearly interprets draft, twist, lay, tension, pressure of the presser, hyperbola curve, the winding of the bobbin, reverse twist on the roving frame, roving frame cones, tensions and compounds so that the student or practical man will profit by his explanations. This is a reprint of 26 pages 8½ x 11 of a series of articles which were previously published in "Cotton," containing valuable information, illustrations, tables, charts and diagrams.

Fay H. Martin is a recognized authority on the roving frame. This book has been adopted by textile schools and vocational schools. Price per copy $1.00 (or it may be secured in conjunction with a 3-year subscription to "Cotton" for $2.50 (Canada $4.00—Foreign $5.50).

COTTON, Grant Building, ATLANTA, GA.

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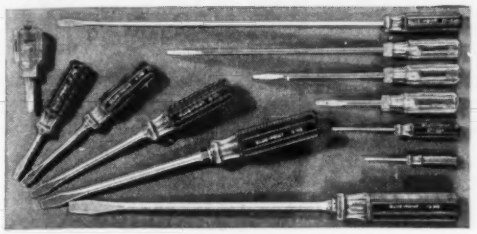

STANDARD AND SPECIAL WRENCHES AND HAND TOOLS *for*
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THAT MAKE WORK EASIER

Nothing saves more time than a screw driver that "fits the job" . . . correct blade length, tip, and weight all combine to help do a job easier and quicker—that's why Snap-on offers over 40 different types and sizes.

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This ring, and its companions, should have been junked long before it wore through. The loss in nursing along crippled rings far exceeds the small write-off on new ones. Flash the light of inquiry on your rings—now. If they are holding production back, a change to new high-polish DIAMOND FINISH should step up output a good 10%.

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the economical assistant in warp sizing.
Penetrating, Lubricating and Wholly Efficient.

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GOOD MONEY VALUES--FREEDOM FROM WORRY

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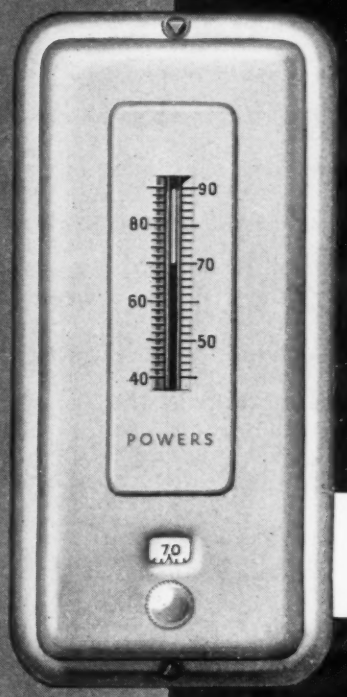

has been an outstanding feature of Powers regulation since 1891. With this type of control, valves or dampers are opened or closed **gradually,** which results in exceedingly close regulation and the maximum of comfort obtainable with automatic control.

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Full-fashioned knitter, ten years experience as knitter and assistant to fixer in large plant, excellent references, married, age 25, employed at present, desires to make change. Address Box No. 476, c/o COTTON, Grant Bldg., Atlanta, Ga.

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Paul B. Eaton

PATENT ATTORNEY

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Our system of searching out higher-bracket salaried positions, hiding your identity, increases your salary commensurate with training and experience. For valuable information, address Textile Dept.,

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will produce results at small cost. Do you desire a position? Do you desire a good man to fill a vacancy in your mill? Do you desire your business or professional card placed before the textile industries?

Why not try an advertisement on this page of COTTON? Its 11,700 copies per month reach the textile executives, superintendents and heads of departments throughout the industry.

Note the rates above and send in your advertisement today.

COTTON

Grant Bldg. **ATLANTA, GA.**

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CAUSTIC SODA

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Nickle-clad or Stainless Vessels

¶ Starch kettles, digestors, vats, and other vessels of this durable metal. Your designs or ours—"custom made" to order.

TANKS, TOWERS, BOILERS, KIERS, KETTLES, STAND PIPES, SMOKE STACKS, AIR RECEIVERS, Etc.

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ESTABLISHED 1854
NEWNAN GEORGIA

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SAMUEL T. FREEMAN & CO. AUCTION EST. 1805

Under the authority of the United States District Court for the Eastern District of Pennsylvania
In the matter of the Meinig Hosiery Co., a Pennsylvania Corp., Debtor. Cause No. 20286

REAL ESTATE—MACHINERY
RAW MATERIAL—PATENTS AND TRADEMARKS OF

The Meinig Hosiery Company

Manufacturers of Ladies' Full-Fashioned Hose

2047 KUTZTOWN ROAD
READING, PENNA.

Also Desirable Industrial Property

516 NORTH 12TH STREET, READING, PENNA.

TO BE SOLD ON THE RESPECTIVE PREMISES

MONDAY AND TUESDAY, JULY 17 and 18, 1939

On Monday, July 17, 1939, at 10 A. M., D. S. T.
AT 2047 KUTZTOWN ROAD
(BEYOND ROCKLAND STREET)

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A tract of approximately 8.6 acres on which is erected a modern one- and two-story concrete and steel industrial building containing approximately 85,000 square feet. A splendid industrial building, advantageously located. Also tract of land 173x558 ft. irreg. **PATENTS & TRADE MARKS:** List may be examined at the office of the auctioneer.

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KNITTING MACHINES, 120 MOTOR-DRIVE FULL-FASHIONED HILSCHER AND READING KNITTING MACHINES.

80 **LEGGERS, 40 FOOTERS,** 18, 20 and 24 sections. All 42-gauge. 60 **LEGGERS** with high-speed shock absorbers. Rocker adjustment, with Picot Worm Pointex, Ringless and Lace attachments. 40 **UNION SPECIAL SEAMING MACHINES.** Style 41200A, 41200AA and 41200.

30 **SOTCO, CONTI RECORD AND HEPWORTH 24 POINT LOOPERS.** American seaming and looping table, motor-driven extractors.

PROCTOR & SCHWARTZ 24- AND 30-FORM BOARDING MACHINES and Dryers.

SMITH DRUM, AMMON AND WEINERTH examining tables and forms.

WILDMAN AND SCOTT & WILLIAMS 6" CIRCULAR TOP KNITTERS. Leesona automatic winders, **KIMBALL, MARKEM AND POTDEVER** label printers, price marking, label pasting and cellophane cutting machines.

MACHINE SHOP EQUIPMENT: Motor drive 24" Steptoe shaper, Walcott lathe, Osterlein universal milling machine, motor geared cam milling machine, upright drill presses, portable electric drills, bench vises, small tools, etc., etc.

LARGE QUANTITY FULL FASHIONED KNITTING MACHINE REPLACEMENT AND REPAIR PARTS for Hilscher, Reading and Ludwig machines, consisting 19 new 3-carrier attachments, large quantity sinkers, dividers, jacks, jack guides, needles, points, knock over bits, picot and stretcher chain, buttons, snappers, carriers and large assortment finished and unfinished castings.

RAW MATERIAL: 6000 LBS. SILK AND WOOL, MERCERIZED AND COTTON KNITTING, LOOPING AND SEAMING THREADS.

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REAL ESTATE
Tuesday, July 18, 1939, at 2 P. M. D. S. T.
At 516 NORTH 12TH STREET,
(Also Known as No. 506)
Reading, Penna.

Desirable three-story and basement, brick, concrete, steel and timber factory building. Lot 81½ feet by 124 feet. Floor area approximately 33,404 square feet. Well lighted, elevator service, sprinklered. Key at 2047 Kutztown Rd.

By order of: **FRANK B. CARLL, C. WILLIAM RIEDEL**
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SAMUEL T. FREEMAN & CO., *Auctioneers*

27 WILLIAM ST. NEW YORK — 1808-10 Chestnut St. PHILADELPHIA — 80 FEDERAL ST. BOSTON

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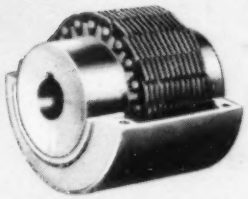

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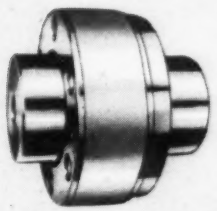

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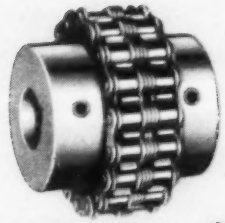

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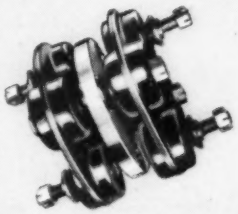

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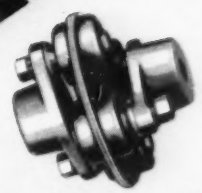

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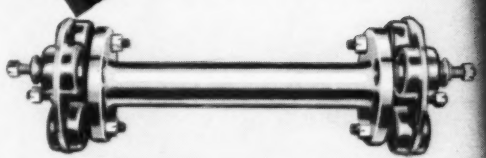

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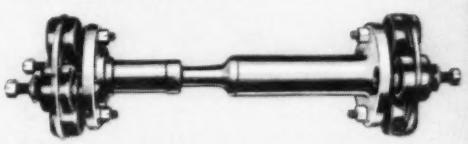

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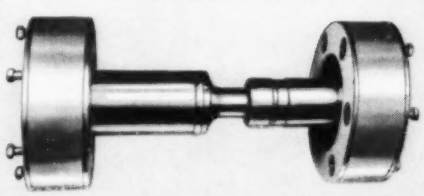

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